

## INTO THE RIDE #3

### The Importance of Clip-less Pedals

In last month's article I hinted about learning to use toe clips or clip-less pedals to develop your pull stroke, and not using the seat as a "bench press". Herein I hope to explain why.



Getting a positive connection here will most definitely yield a positive outcome on your riding efficiency.

One of the supposed advantages of recumbent cycles is the ability to use the seat back to literally "bench press" your way down the road. Many salespeople and enthusiasts are using this as a way to sell or explain recumbents. Even experienced riders and manufactures are promoting this concept, so I am really going against the grain to debunk this approach, since to me it is simply not a major advantage. In fact, after close study, you may see it as a disadvantage.

Let's take a look at what pushing into the seat does. Most recumbent bike seats are made of a tubular frame with a mesh back and seat stays. The stays not only allow for a rigid seat back, but also allow seat tilt adjustment. Pushing against this type of seat will indeed allow a great amount of pressure to develop. Sit on the bike with one foot on the ground and the other in the pedal at 12:00 high. Hold the brake tight, push on the pedal and force yourself against the seat back. At this point, the seat back is being loaded, and the mesh is flexing and absorbing the load--acting much like a spring. The seat back transfers the load into the frame, the stays, and the seat clamp. Pushing against a spring is not the best way to extract power out of anything, as some energy is always lost in deflecting the spring.

Keep pushing on the pedal and you will start to realize the joints in your leg, including your hip, are under considerable strain. The strain is something your body can handle, but once you add the repeated motion of hours of cycling, the picture changes. During a typical hour-long ride you will have put your joints through about 6000 cycles. Add the pressure from "grinding" (using gearing that's too low) and you have a recipe for chronic knee pain.

I advocate the use of toe clips or clip-less pedals and shoes to avoid "recumbent knee". Clip-less pedals and shoes or toe clips will enhance your riding in other ways as well. Strapped into the crank you can now use your quadriceps. Even your calf muscles will be more effective, especially on the pull part of the stroke. The quadricepses are the second largest leg muscles on your body. Developing the quads will balance muscle development, effectively adding endurance and strength. The most exciting aspect of clipping into your pedals is, once you shape up those quads, you're going to notice climbing is not so killer.

To effectively turn off the knee strain and turn on the quads, you will need to learn to spin and pull smoothly. A good spin RPM is 120 to 140. A high spin speed is important, since it is a more effective way to use what little horsepower we have. Humans are good for about a 1/3-horse power--not much compared to your car, which uses 12HP to maintain a cruise speed of 55 MPH. Despite our small power output, we can do impressive things, like ride a 100 or more miles in a day. So learning to spin will enhance your speed and endurance.

To spin you must clip in. But selecting a method of foot retention can be a long and expensive process. Not many shoe vendors will let you try out a pair for a day-long ride, so pick shoes that at least feels good to walk in, and accept the fact that you may buy more than one pair before you are happy.

The road shoe is very light, and performance enhancing, but they can be a bit ungainly to walk in. So for all around riding, I prefer the mountain-bike-style riding shoe because they make fairly decent walking shoes. This type of shoe will have more sole and traction lugs, allowing the cleat to recess a little. It is a practical concern on my part. Since I ride to the grocery store a lot, shoes with cleats can lose traction on smooth floors. Be ready for this with whatever bike shoe you wear.



The exact shoes I use are the Shimano 44 SPD's.

Once you have found a good fitting shoe, you need to select a clip-less pedal. Take note: remember to ask if it will accept most cleats (and thus, pedal styles). Most shoes do, but ask to be sure--otherwise you may have to make a new shoe selection if the style of pedal is not compatible.

Picking the clip-less pedal right for you will be another journey into variety-land. There is a wide selection of designs and brands. The clip-less pedal movement was virtually started by Froggers, so this is what I started using years ago. I always had fairly good luck with them, except they were too easy to pop out of. I noticed that if I was not careful about keeping my feet from swiveling too much, they would disconnect.

One of our staffers recently bought a pair of EggBeaters by Crank Brothers. He was not happy with them, so I opted to give them a whirl. At first I found them harder to clip into. But there was a nice solid feel I hadn't noticed with the Froggers. The more I used them the more I liked them. My problem with spontaneous pop-outs went to zero. The Eggbeaters offer more and more resistance as you try to twist out of them. I like this feature, since it provides more feedback as to how much effort is needed to disengage. Of course, this is my current personal preference.

The Eggbeaters may give way to some new, improved clip-less system. I have a prototype of magnetic pedals to try. I will give you the full story on these. They do look interesting, to say the least!

Once you have tried a pair of shoes and clip-less pedals, I mean really tried them, long enough for them to be second nature, you will be a convert. You will not like riding without them. You will not feel connected to the bike, or able to extract the power. It really will make that much difference. So please give them a try, work in that spin, and learn to pull with your quads. This will not only enhance your cycling performance, but it may save you from "recumbent knee" as well!



*INTO THE RIDE*