

## ToolBox: Treatment for Sore Knees

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The knee is a complex biomechanical piece of machinery and a common site for injuries for cyclist. When not functioning properly, it will let you know with a nice dose of pain. There are many conditions and outside factors that can affect the knee. In this article, I have combined two patients with similar complaints, into one patient with a functional problem called **Patellar Tendonitis**.

### Assessing the Knee

A patient comes to my office with bilateral knee pain that is present after riding his road or mountain bike. He has recently purchased his road bike to add to his training and the problem occurs soon after that. Review of his past medical history is non contributory and family history is benign as it relates to his present condition. His physical exam is normal as well as vital signs.

He is in his 20's, physically fit, has been riding for several years, and has recently started training harder. Range of motion is full in all planes, and his arches and gait are normal as well. No excessive rotation is noted in his hip or knee. Leg length was assessed and there are no structural or functional changes noted. I performed several orthopedic tests to his back, hip, knee and ankles with no positive findings. I begin to palpate (touch) his patella tendon just below his knee cap when the patients says "that's it doc, that's tender" I continue to feel around his knee and observe no other finding.

Next step, he has brought his bike and shoes so I take a look at his cleats and they are way off. The patient is basically riding on his toes, which is not good and his right cleat is rotated internally way too much. I then examined his position on the trainer and took some measurements and dropped a plumb line and his saddle was too low as well as too far forward. I have no idea how he was making that bike move forward. The best part was he got a "free" bike fit with the purchase of his new bike. Needless to say he needed a proper bike fitting and some treatment for what looks like **patellar tendonitis**.



*Fig. 1: The black marker indicates location of the patellar tendon.*

### Could This Be You?

So, what are the indications that you might have this problem? Well first, the pain is just below your knee cap on the tendon that attaches your patella to a bump at the top of the shin called the tibial tuberosity (Fig 1). It can be at any point along this tendon. You may also have difficulty walking up and down stairs or notice the pain when you step off a curb. You can get swelling but this is not common and could mean you have some rupture of the tendon or fracture that needs further evaluation and can occur at the patella or at the tibial tuberosity. The pain can occur after a hard ride.

Why and how does this happen? Well, for one, pushing a large gear for extended periods of time. Doing long or hard climbs can be made even worse if you are pushing a large gear. In addition, one should take into account the fact that people tend to jump into hard efforts or extended amounts of saddle time before their body has a chance to adapt to the change. That's why we have the 10% rule (do not increase your volume/intensity by more than 10% per week) to let your tendons, ligaments, and bones adapt. There are patients who have improper recovery, not enough sleep, poor nutrition, or lack of recovery rides.

Of course the bike fit can be a problem if the saddle is too low or if your cleats are not positioned properly. Also too much float can cause your knees to have to do too much work in stabilizing the area and this can lead to an increased tensile pressure at the patella tendon. Also, watch what you are doing off the bike (ie; heavy squats, kneeling for long periods of time, playing basketball, and riding can overload the area).

### Back to the Patient

I made some bike adjustments and sent him to a great bike fitter named Chris at "The Bike Doctor" in Waldorf Maryland who made a few more adjustments to his position. In addition, I began to give him some treatment and recommendations based on my idea of the six pillars of recovery.

1. Awareness of state: monitor your overall health.
2. Rest: Sleep, Naps, down time.
3. Play: Make sure you have time for friends and family etc. Don't burn yourself out.
4. Nutrition: Food and supplements.
5. Physical: Chiropractic, physical therapy and massage.
6. Psychological: Positive mindset, visualization and sports psychology



*Fig. 2: This is an example of the applying of Kinesio-tape for patellar tendonitis.*

In this case we will focus on the Physical components of what we did with this patient. We used kinesio-tape as seen in Fig 2. Kinesio-tape is used to take some of the pressure off the tendon and also aids in speeding up the healing process. Next, I used a low level laser or cold class III laser that will not heat or destroy tissue, but in fact speeds up the healing process. I also performed some soft tissue work on the tendon and muscles of the knee. I adjusted (manipulated) the knee and ankle joints to make sure we had proper alignment and functional biomechanics occurring at the knee and ankle. I had the patient take some time off the bike and then worked him back on staying away from the hills and low cadence. I also had him perform ice massage to the area 3 times a day for 5 min which is much better than using an ice pack for this condition and quicker. We made some diet recommendations and added a supplement to help with recovery. We also ordered some x-rays to make sure that the patella was not degenerating and to rule out some other possible issues. Other tests a sports doctor may order are an MRI, CT and bone scan to further evaluate the knee, such as deviations or tears to soft tissue.

Another aspect of knee conditions I would like to point out concerns many younger athletes. A condition called *Osgood-Schlatter's Disease*, which occurs mostly in young athletes and adolescence, where they experience marked pain in the knees. A hallmark of this condition is pain right on the tibial tuberosity, which is the bump on the shin. If a young athlete continues to exhibit persistent pain in the knees, he/she should consult a doctor and be evaluated for Osgood-Schlatter's disease.

In conclusion, my suggestion would be to follow these rules and stay out of my office:

1. Proper bike fit
2. Follow the 10% Rule
3. Good nutrition, such as eating plenty of fruits and vegetables
4. Proper recovery
5. Get help early and see a good sports doctor

#### **References**

1. Orthopaedic Testing; Gerarad, Janet A., Kleinfield, Steven L.; Churchill Livingstone Inc.; 483-578.
2. Knee Pain and Disability; Caillet M.D., Rene; F.A. Davis Company; 3; 143-179

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#### **About Rick:**

Rick Rosa, DC, DAAPM, is a practising chiropractor based in Maryland. He is the owner of Rosa Rehab in the Washington, DC area, and has worked as a team doctor for a wide variety of champion boxers and cycling teams. He can be reached for comments at [RecoveryDoc.net](http://RecoveryDoc.net)