



## Injury Prevention

Presented by Giba Ambrogi

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### **Patellofemoral Pain Syndrome and Chondromalacia Patella**

- Description: imperfection during the gliding of the patella over the surface of the femur can lead to an erosion or softness of the underside surface of the patella
- Location: anterior aspect of the knee
- Possible causes: muscular imbalances in power or/and flexibility, riding in high gears, prolonged hill climbing, poor bike fit, biomechanical misalignments (knock-knee)

### **Tendinite Patelar**

- Description: inflammation of the tendon that connects the patella to the tibia
- Location: pain and tenderness just below the kneecap
- Possible causes: riding in high gears, prolonged hill climbing, poor bike fit, biomechanical misalignments
- Adolescent boys: Osgood-Schlatter disease

### **Quadriceps Tendinitis**

- Description: inflammation of the tendon that attaches the quadriceps muscle to the patella
- Location: pain and tenderness just above the kneecap
- Possible causes: riding in high gears, prolonged hill climbing, poor bike fit, biomechanical misalignments

### **Iliotibial Band Friction Syndrome (ITBS)**

- Description: irritation and pain induced by repetitive friction of the ITB over the lateral femoral condyle
- Location: pain at the lateral aspect of the knee
- Possible causes: a tight ITB, riding in high gears, prolonged hill climbing, poor bike fit, biomechanical misalignments

### **Pes Anserinus Tendinitis/Bursitis**

- Description: an overuse injury due to an inflamed tendon or bursa where three muscles (semitendinosus, gracilis and sartorius) join at the pes anserinus on the tibia
- Location: pain at the upper, medial aspect of the tibia below the knee
- Possible causes: weak vastus medialis, tight hamstrings, poor bike or cleat fit, biomechanical misalignments (bowlegs)

### **Hamstring Tendinitis**

- Description: posterior knee pain caused by hamstring problems
- Location: pain at the posterior, lateral aspect of the knee
- Possible causes: weak and/or inflexible hamstrings, inflexible low back, prolonged hill climbing

### **Achilles Tendinitis**

- Description: inflammation of the Achilles tendon
- Location: pain in the lower, posterior leg, below the calf
- Possible causes: wearing high-top, non-cycling shoes, exaggerated plantar flexion while pedaling, excessive stretching through the lower limb due to poor bike fit

### **Plantar Fasciitis**

- Description: inflammation of the plantar fascia at the arch of the foot
- Location: pain or tenderness at the base of the heel
- Possible causes: wearing footwear that is too flexible, improper foot placement on the pedal

**Hot Foot**

- Description and location: pain, burning, or numbness in the ball of the foot or the toes
- Possible causes: long training hours, wearing too-narrow shoes, pedal straps cinched too tight

**Neck and Back Pain**

- Description and location: strain to the neck and back muscles
- Possible causes: weak and/or inflexible back muscles, weak abdominals, prolonged riding in the same position, riding in high gears, poor bike fit

**Piriformis Syndrome**

- Description: pain and tenderness associated with sciatic symptoms and the piriformis muscle, which attaches at the sacrum and the head of the femur bone
- Location: pain and/or tenderness in the deep buttocks or posterior hip and/or leg (often confused with back pain)
- Possible causes: poor bike fit, mechanical compression/tension of the piriformis muscle, muscular tightness, biomechanical misalignments

**Saddle-Related Soreness**

- Description: abrasion, irritation or infection of the skin
- Location: upper thighs, buttocks and/or genital area
- Possible causes: improper bike fit or saddle position, inappropriate cycling gear

**Loss of Sensitivity at the Penis and/or Erection Problems**

- Description: nerve and circulation compression between the saddle and the ischial tuberosities (sitting bones)
- Possible causes: incorrect posture, saddle too high/with the point up, inappropriate cycling gear

**Ulnar Neuropathy**

- Description: compression of the ulnar nerve located in the heel of the hand
- Location: numbness, tingling and/or weakness in the pinkie and part of the ring finger
- Possible causes: gripping the handlebars too tightly or for prolonged periods of time, infrequent hand position changes, poor bike fit

**Causation Chart**

	1	2	3	4	5	6	7	8	9
CHONDROMALACIA PATELLA									
PATELAR TENDINITIS									
QUADRICEPS TENDINITIS									
ILIOTIBIAL BAND FRICTION SYNDROME									
PES ANSERINUS TENDINITIS / BURSTITIS									
HAMSTRINGS TENDINITIS									
ACHILLES TENDINITIS									
PLANTAR FASCITIS									
HOT FOOT									
NECK AND BACK PAIN									
PIRIFORMIS SYNDROME									
SADDLE-RELATED SORENESS									
ULNAR NEUROPATHY									

- 1- MUSCLE IMBALANCES
- 2- MUSCLE FLEXIBILITY
- 3- CADENCE TOO LOW
- 4- PROLONGED HILL CLIMBING
- 5- POOR BIKE FIT
- 6- BIOMECHANICAL MISALIGNMENTS
- 7- INAPPROPRIATE CYCLING GEAR
- 8- POOR TECHNIQUE
- 9- LONG TRAINING HOURS

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## Giba Ambrogi

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Spinning® Master Presenter since 2000  
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Ironman Brasil finisher—2007  
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