

# RUNNER'S KNEE

By Richard Beauchamp

**H**ave you ever experienced pain around the front of your knee(s) during or after a run? If so, you may have had a case of runner's knee! To be more precise, however, runner's knee is a vague term used to describe the above symptoms—pain in the knee. It is most commonly seen in runners, hence the term. There is another condition affecting the knee known as jumper's knee. You guessed it—most commonly seen in jumpers, e.g., basketball players.

Runner's knee is a common condition. However, the actual cause and hence effective treatment can be far from easily explained. Runner's knee is a whole grab bag of other diagnoses and conditions often aggravated by the pounding of the legs on the ground during your sport. Your legs have to both generate force in order to run as well as absorb force in order to protect your bones and muscles from injuries. Walkers can also get runner's knee but not as frequently—but should still read this!

To better understand what can cause runner's knee, we can divide the causes into two broad categories: **intrinsic causes** (from actual conditions inside the knee) and **extrinsic causes** (from other adjacent parts of the body but affecting the knee).

**Intrinsic causes** for runner's knee can include injuries to the cartilage, ligaments or tendons inside the knee joint. These are often seen as an acute injury, following a fall for instance, and thus can account for knee pain. However, this is not a true reflection of the syndrome of runner's knee. You may have heard of a torn meniscus or an anterior cruciate ligament (ACL) injury. These types of conditions need to be seen by your family physician and may need more extensive investigations and treatment. Usually there are no true knee diseases that cause runner's knee. The true knee conditions usually develop secondary to some other cause.

**Extrinsic causes** for runner's knee are much more common. They can include anatomical alignment issues, muscle weakness, overuse syndromes, etc. Every runner has a unique body build and running pattern. This uniqueness is what can make some runners

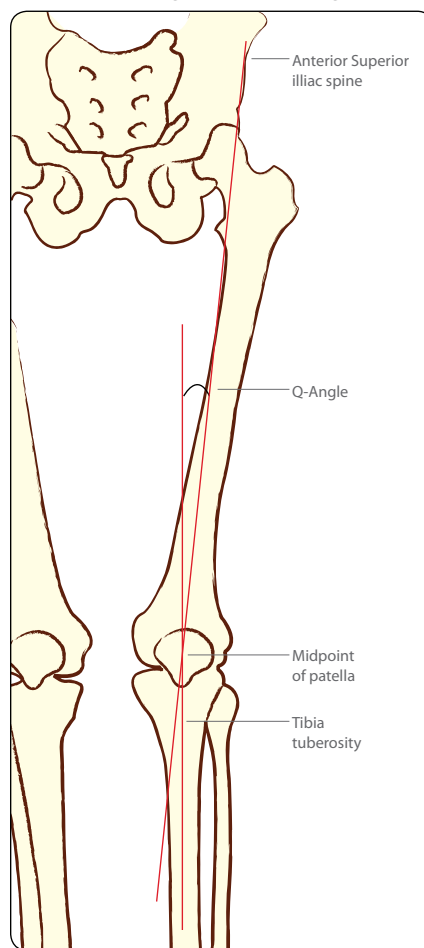
very efficient machines whereas some of us have to struggle to maintain our fitness through running.

## Malalignment & Patello-Femoral Syndrome

Malalignment syndromes of the lower extremities can precipitate the development of knee pain, usually through an abnormal pull of the muscles on the kneecap (patella). Knock-knees or bowlegs can produce abnormal patello-femoral movement (also known as "tracking") and subsequent knee pain as well.

Most cases of runner's knee are actually due to a combination of quadriceps (thigh) muscle weakness and poor tracking of the kneecap on the femur (thighbone). This poor tracking can be from misaligned body parts in the foot, leg or pelvis. The anatomical alignment of the quadriceps tendon and muscle at its attachment to

### Determining the Q-Angle



the kneecap is described as the "Q" angle (Fig. 1). An increased Q angle usually refers to excessively loose tracking of the kneecap leading to knee pain and, at times, eventual kneecap dislocations. This poor tracking can lead to some degree of cartilage degeneration under the kneecap





## About Richard

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causing pain felt mainly over the front and inside areas of the knee joint. This is often referred to as chondromalacia patella. The whole syndrome of runner's knee and chondromalacia patella is often coined Patello-Femoral Stress Syndrome (PFSS). Running down a hill can be especially sore for the runner suffering from runner's knee mainly because of the unique muscle pull that is needed by the quadriceps when you are braking and slowing down, trying to keep your legs under control. Sitting in one position for a prolonged period and then standing up often makes runner's knee symptoms increase – this is called a positive theatre sign. There usually is no knee pain present at rest.

When you visit your doctor for this condition he/she may want to look for any other conditions that may require further treatment than is offered below. She may order an X-ray of your knee to look at the bony anatomy to make sure you don't have any cracks in the bone or unusual tumors etc. (Fig. 2, 3). He may even want to order a Magnetic Resonance Image (MRI) to look at the cartilage, meniscus and ligaments (Fig. 4).

### Treatment:

Like any other running injury, the best initial treatment for runner's knee is undertaken by the runner. This means a careful review of your running history and identifying any predisposing factors such as an excessive recent increase in distance and speed, worn out running shoes, or the addition of recent hill training. Perhaps you can alter some of these factors and your symptoms may subside. If that is not successful, then you should consult your

health care provider. If you have a knee that frequently locks up and does not bend or straighten properly or is so loose that you cannot rely on it to properly support you, then you should check with your physician. On the other hand, if you have more complaints related to knee pain without the above issues then you need to have your running style and leg alignment assessed and a general biomechanical assessment of your lower extremities including spine and pelvis by a therapist specializing in sports injuries.

The most frequent treatment modalities for runner's knee usually involve a combination of strengthening the quadriceps muscle (often the "VMO" component), stretching any opposite muscles that may be tight (e.g., ITB, hamstrings), and possibly altering your shoe wear or incorporating a foot orthosis into your running shoes. Sometimes your therapist or doctor may prescribe a knee brace or orthoses (Fig. 5).

### Knee Brace or Orthoses



Figure 5

Tylenol® as a pain reliever and Motrin® as an anti-inflammatory agent are useful for the short-term control of the pain associated with runner's knee. Exercise caution in taking drugs for more than three weeks, as the possible side effects may be annoying.

Once you begin an appropriate treatment program for runner's knee, it may take several months for the symptoms to subside. You can help prevent recurrence by maintaining adequate quadriceps strength using weights and ensuring your footwear is supportive.

## Causes of runner's knee

### Malalignment Syndromes

- » Knock knees
- » Bowlegs
- » Wide pelvis
- » Excessive pronation/supination

### Muscle Problems

- » Quadriceps weakness – especially VMO
- » Ilio-Tibial Band (ITB) tightness
- » Hamstring tightness

### Previous Trauma

- » Degenerative arthritis
- » Torn meniscus
- » Dislocated patella

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