

**BioPed**

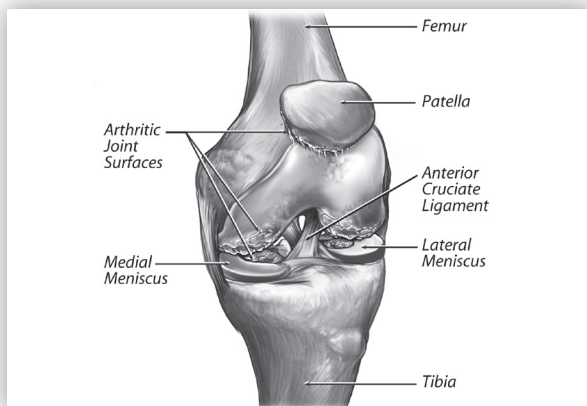
# knee & ankle pain



Knee and ankle pain stem from repetitive activities involving the joints. Frequently, they can also occur from unexpected injuries as well. However you have arrived at your knee or ankle pain, there are a number of solutions to help get you back on your feet again. This brochure will outline some common causes of knee and ankle pain and how they are treated.

## KNEE & ANKLE PROBLEMS

## OSTEOARTHRITIS



### What Is It?

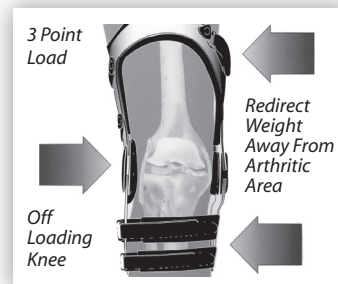
Between the two bones making up the knee joint is a cushioned substance known as cartilage. Its purpose is to allow the bones to move smoothly over each other. When the cartilage and surrounding bone become worn down, this is termed "osteoarthritis".

### Symptoms May Include:

- Stiffness upon waking in the morning
- Aching with movement
- "Cracking" or knee giving away sensations

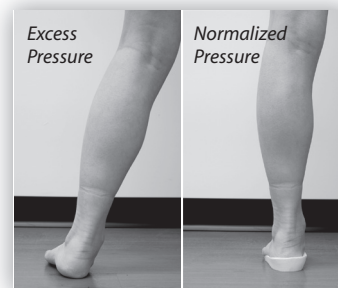
### May Result From:

- Repetitive bending and lifting
- Foot malalignments
- Weight gain



### Available Treatments:

**Arthritic knee braces** - Braces will redirect weight away from the arthritic areas as well as regain stability. They are recommended for individuals who wish to remain active.



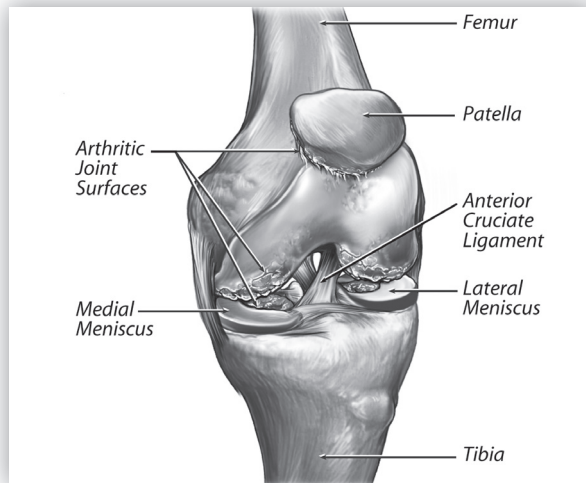
**Orthotics** - Flat or high arched feet can create imbalanced pressures at the knee. Custom made orthotics work to minimize and redistribute the pressures while reducing pain levels.



**Footwear** - Motion control footwear with wide bases and firm arches provide a stable base of support for the knee in order to minimize wear and tear.

## KNEE & ANKLE PROBLEMS

### ANTERIOR CRUCIATE LIGAMENT (ACL) TEAR



#### What Is It?

The anterior cruciate ligament (ACL) connects the shin bone (tibia) to the thigh bone (femur) and prevents it from moving too far forward. In certain situations, this stabilizing ligament can tear.



#### Symptoms May Include:

- Immediate swelling
- Knee buckling or "giving way"
- Significant pain that goes away after a few weeks

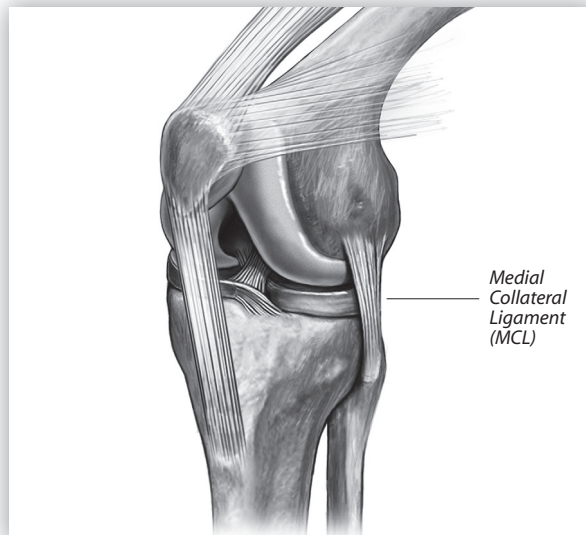
#### May Result From:

Forcefully twisting or pivoting the leg while its firmly planted on the ground.

#### Available Treatments:

ACL knee braces – Braces prevent the shin bone from moving too far forward relative to the thigh bone. This act mimics the work of an intact ACL ligament thereby eliminating reaggravation to the injured ligament.

### MEDIAL COLLATERAL LIGAMENT (MCL) / LATERAL COLLATERAL LIGAMENT (LCL) TEAR



#### What Is It?

The medial collateral ligament (MCL) connects the thigh bone (femur) to the shin bone (tibia) on the inside of the knee and provides stability. The lateral collateral ligament (LCL) connects the thigh bone (femur) to the other bone (fibula) in the lower portion of the leg and stabilizes the outer side.



#### Symptoms Vary by Degree of Tearing and Include:

- Pain & swelling
- Bruising
- Instability

#### May Result From:

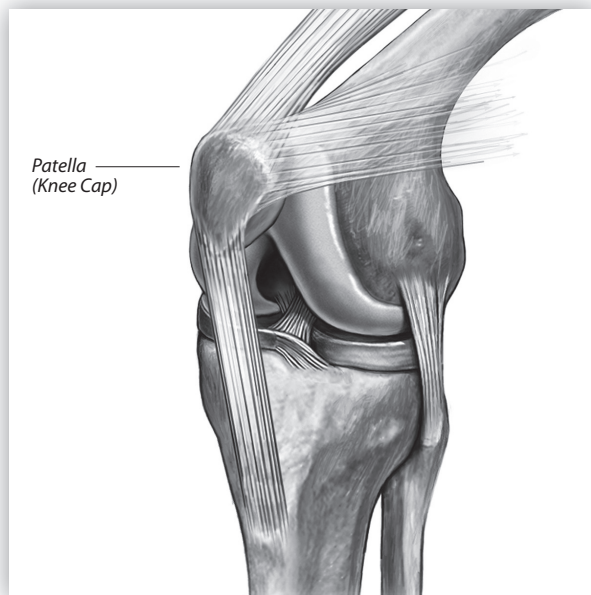
A strong force/blow to outside or inside of the knee.

#### Available Treatments:

Collateral ligament knee bracing – Braces return stability to the inside and outside of the knee. Braces prevent buckling, reduce pain and protect from further injury to the ligaments. They provide enough stability to return an individual to their activities of daily living with a greater sense of security.

## KNEE & ANKLE PROBLEMS

### PATELLOFEMORAL PAIN SYNDROME (PFPS)



#### What Is It?

Patellofemoral Pain Syndrome (PFPS) is often described as a gradual onset of pain in the front of the knee cap. The pain is caused by improper tracking and abnormal movement of the knee cap over the bone below.



#### Symptoms May Include:

- Pain with walking up or down stairs
- Discomfort with prolonged sitting

#### May Result from:

- Avid running and / or cycling
- Tight or weak muscles

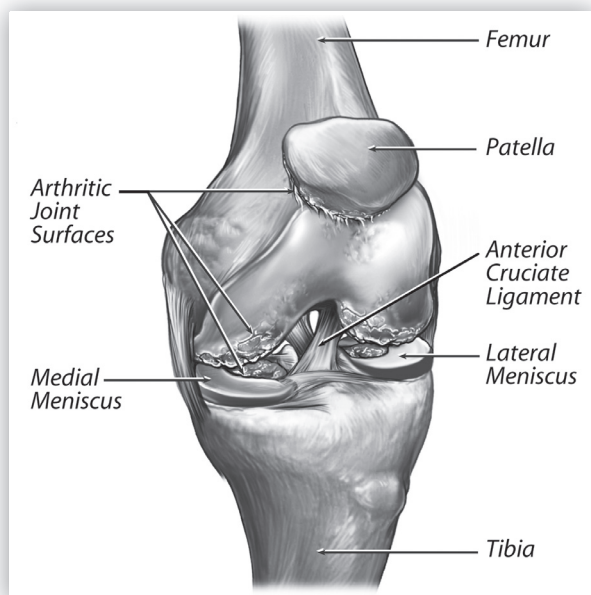


#### Available Treatments:

**Bracing** - A brace with an opening over the knee cap will help maintain its proper tracking by adding a degree of compression to prevent improper movements.

**Orthotics** - Recommended for individuals with flat or high arched feet. These variations from a normal arch can lead to an abnormal positioning of the knee, resulting in surrounding muscular imbalances. Orthotics can correct the imbalances and lead to better tracking of the knee cap.

## MENISCAL INJURIES



#### What Is It?

There are two menisci in the knee; one on the inside and one on the outside of the knee. They work primarily as shock absorbers and stabilizers of the joint along with providing necessary nourishment to surrounding structures.



#### Symptoms May Include:

- Frequent catching or locking of the joint
- Pain that goes away quickly
- Initial swelling

#### May Result from:

- Repetitive activities causing wear and tear of the joint
- A strong twisting force during sports participation

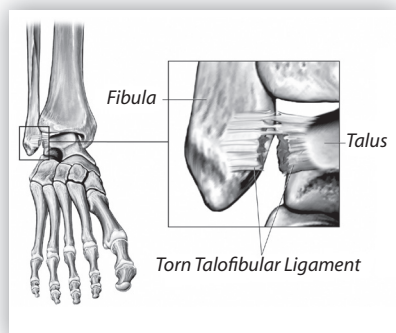


#### Available Treatments:

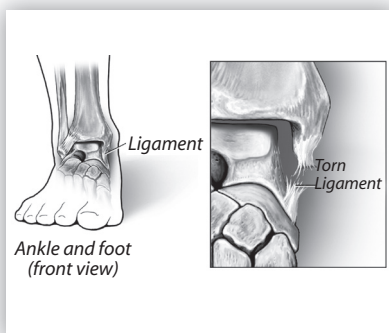
**Meniscal braces** - Braces are recommended to facilitate the recovery process. They provide stability by decreasing those motions that cause increased pain including side-to-side motions and twisting motions. When wearing a brace, patients return to their daily activities quicker and with less risk of re-injury.

## KNEE & ANKLE PROBLEMS ANKLE SPRAINS

Ankle sprains occur when the ligaments connecting the bones in the foot and ankle are stretched or torn typically during a slip or fall. There are three types of sprains that can occur - inversion, eversion and high ankle sprains.



**INVERSION SPRAIN** - This type of sprain is the least severe and occurs the most frequently. Ligaments on the outside of the ankle are injured.



**EVERSION SPRAIN** - This type of sprain is the most severe, but fortunately occurs less often than the others. Ligaments on the inside of the ankle are injured and in certain situations, may be pulled away from the bony attachment.



**HIGH ANKLE SPRAIN** - This type of sprain involves an injury to the large ligament connecting the two bones of the lower leg (tibia and fibula).

### Symptoms:

Symptoms vary based on whether the ligaments are stretched or torn either partially or completely. There can be a range in severity from the ability to weight bear with some pain in the case of a stretched ligament to a complete inability to weight bear accompanied by a decrease in sensation with a complete tear.

### May Result From:

- Flat feet
- High arched feet
- Accidental falls
- Lack of proper proprioception (muscle coordination)

### Available Treatments:

**Ankle bracing** - Braces can be used for both prevention of a sprain if involved in a competitive sport or as a treatment if an injury has already occurred. Ankle braces provide reinforcement about the ankle as well as better coordination of the muscles surrounding the joint.

**Orthotics** - Research conducted on athletes has shown that individuals with flat feet fatigue more quickly and therefore are more likely to suffer from inversion sprains. Orthotics can be created to raise the arch area in flat footed individuals and prevent the occurrence of ankle sprains to start with.

**Footwear** - Motion control footwear with features including wide soles and firm arches provide the body with greater stability and lead to less muscle fatigue. In turn, this supportive foundation enables the ankle to remain secure and less likely to be injured.

Please visit [www.bioped.com](http://www.bioped.com) for a list of all centres across Canada

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