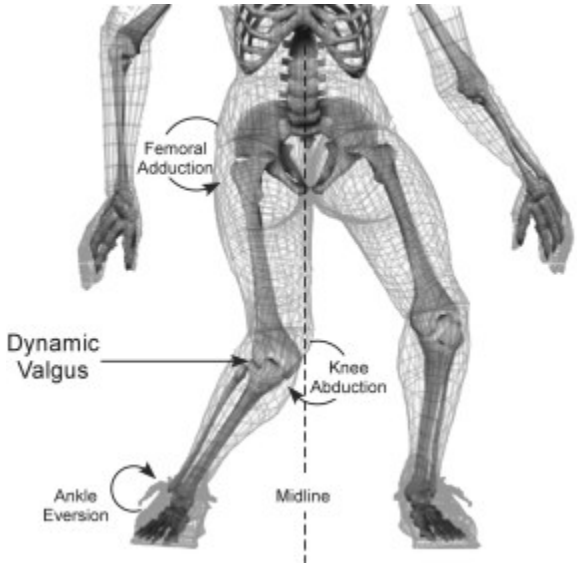
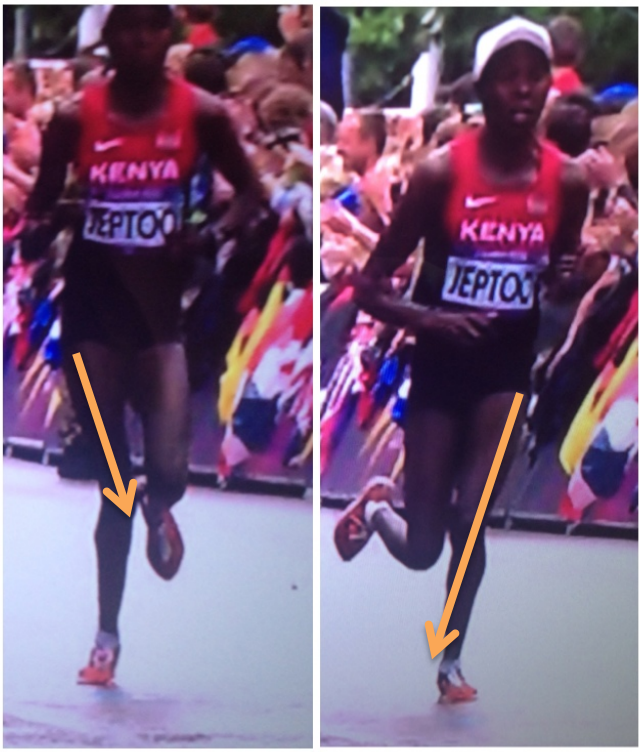
Patellofemoral and Meniscus Injuries in the Knee

Knee injuries are common in sports. The knee is involved with running, jumping, squatting, lunging, walking, stairs etc… How the knee is injured is not a mystery. If you understand what structure in the knee is injured then you can look for why it occurs. Research has given the sports medicine community so much information about the forces required to cause a structure to fail, example if you have an injury to the ligament on the inside of you knee (MCL) we know some force caused your knee to go inward for it to be injured. With this information sports medicine practitioners should be able to first diagnosis the injury, second have a sound treatment plan to help it heal faster, and third show the athlete how they can go back into their sport and train around the injury.

I am going to cover a few common injuries we see regularly to de-mystify them.

Patellofemoral syndrome: this term means that the person has pain around the knee cap (patella). The pain can be on the inside, outside, top or bottom of the knee cap. Common symptoms are increased pain standing, sitting with the knee bent, walking up stairs, running, squatting, lunging the list goes on. It can be a very disabling for anyone who has experienced this pain. The reason this injury occurs is the knee is being put into a inward position with a rotation (what is described as a valgus motion).





Research on this injury has shown that the problem is really not at the knee but at the hip. Hip restriction and or lack of control of the femur (the long thigh bone) will place the knee in to the valgus position (see above pics).

In a patellofemoral syndrome the femur is moving under the knee cap in one direction and the knee cap itself is moving in a different direction causing the stress to go to the knee and the structures that stabilize the knee cap. This movement can occur during any activity as you can see in the above pics. Treatment for this condition will need to address any hip dysfunction as well as the knee component. Rehabilitation should include hip and knee stabilization. Understanding what the mechanism is that causes the injury lets athlete train around the injury. The goal of rehab is to incorporate exercises/movements that protect the injury,but it is essential to no let the athlete decondition. Modify the athlete's exercises but get them back into their sport as soon as possible. We want to make their sport the rehabilitation.

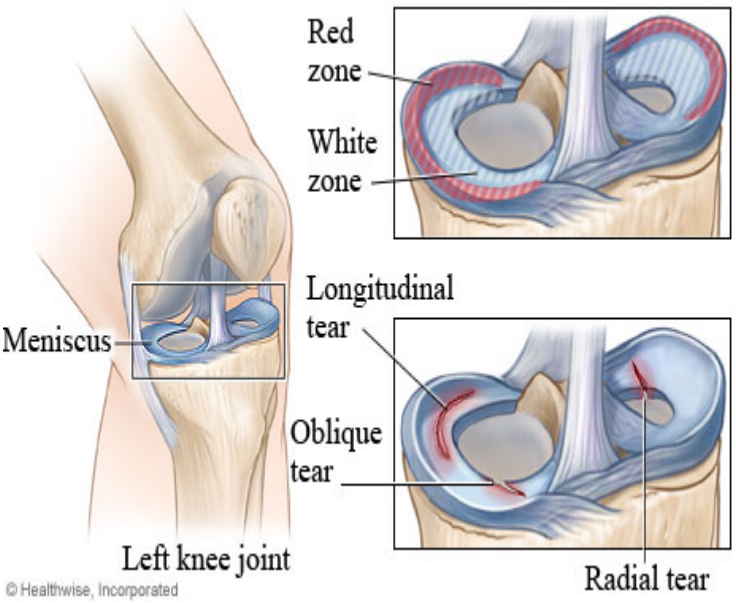
Meniscus:

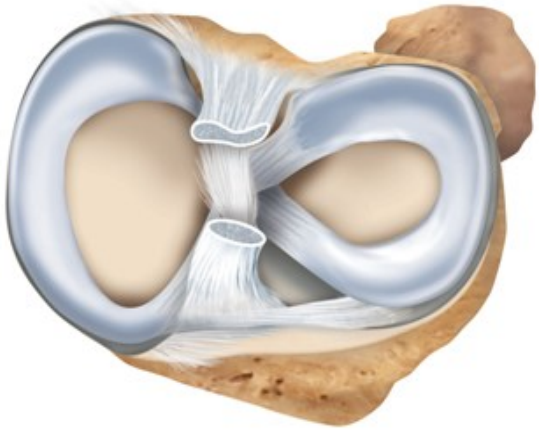
The menisci there are two one on the inside and one on the outside. The meniscus on the inside works different than the one on the outside. The medial or inside meniscus will move back and forward with the thigh bone to keep the femur (thigh) and tibia (shin) from hitting each other. The lateral meniscus is more fixed.

The meniscus is designed to help cushion the joint, protecting the knee from compressive forces. They also help disperse the load thought out the joint from the torso above and the forces coming up from the ground.

The meniscus is commonly injured when the joint is under load and it under goes rotation. If you add to the combined movement of compression, rotation and lateral or medial movement now it is vulnerable to injury.

Not all meniscus injuries require surgery. Generally if the injury to the meniscus is large enough it will need to be removed. In the meniscus there is a dividing line. The outer part of the meniscus has a good blood supply, vascular and the inner part does not have good blood supply, avascular. If a tear crosses the dividing line into the avascular part of the meniscus then will usually require surgery.





Treatment for the meniscus will be similar to the patellofemoral syndrome. It is important to not only treat the knee but the hip as well. When rehabbing the meniscus injury the goal is to put the knee in a position that it is not reinjured and strengthen it in that position. When the athlete returns to weight bearing movements it is important to correct any gait abnormalities. These abnormalities will be seen during running and especially cutting maneuvers. Re-injury or aggravation of this condition is common as activity increases because hip, pelvis and torso control is off. The hip and torso position can put increased pressure on the knee so it must be controlled for a successful rehab.