Knee Joint Anatomy.

The Knee Joint.

The knee joint may look like a simple joint, but it is actually one of the most complex. Most players are likely to injure their knee, or suffer with knee pain, at some time while playing football. The knees of football players come under enormous stress and strong healthy knees are crucial in preventing injury and performance.

Knee Joint Injuries.

Bones.

The knee is essentially made up of four bones. The femur, which is the large bone in your thigh, attaches by ligaments to your tibia. Just below and next to the tibia is the fibula, which runs parallel to the tibia. The patellar (kneecap) slides on the knee joint as the knee bends. There are also a number of ligaments, cartilages and muscles which strengthen and support the knee. (See Figure 1).

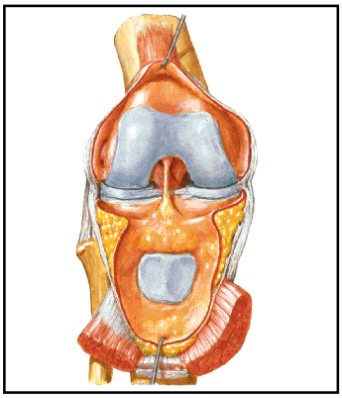

Figure 1: The Knee Joint.

Ligaments.

The knee can be thought of as basically having four ligaments holding it in place, one at each side, to stop the bones sliding sideways, and two crossing over in the middle to stop the bones sliding forwards and backwards.

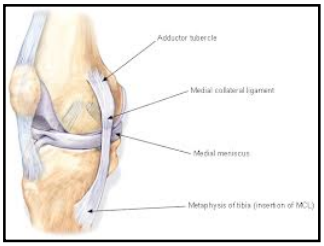

Figure 2: The MCL.

1) Medial collateral ligament (MCL) – runs along the inner part of the knee and prevents bending inwards (See Figure 2)

2) Lateral collateral ligament (LCL) – runs along the outer part of the knee and prevents bending outwards (See Figure 3).

3) Anterior cruciate ligament (ACL) – lies in the middle of the knee. It prevents the tibia sliding forwards in front of the femur. It also provides rotational stability to the knee (See Figure 3).

4) Posterior cruciate ligament (PCL) - works in conjunction with the ACL. It prevents the tibia sliding backwards under the femur..

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Meniscus.

A commonly injured part of the knee while playing football is the meniscus. The meniscus is a wedge-like rubbery cushion, which connects the bones of your the together. The meniscus (or cartilages) are shaped like the letter "c" at the inside and outside of the knee providing a strong stabilizing tissue (See Figure 3). The meniscus helps the knee joint carry weight, glide and turn in many directions. It also acts as a shock absorber and keeps the thigh bone and shin bones from grinding against each other.

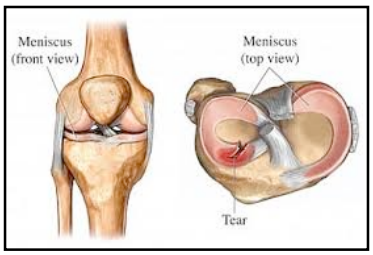

Figure 3: The Meniscus and Ligaments of the Knee.

Bursa.

A bursa is a little fluid sac that helps the muscles and tendons slide freely as the knee moves. There are a number of bursae around the knee joint.

Muscles.

The largest muscles that go across the knee joint are the quadriceps and the hamstrings. The quadriceps muscles are on the front of the knee, and the hamstrings are on the back of the knee (See Figure 4). These muscles help to bend (hamstring) and straighten (quadriceps) the knee. There are a number of other muscles that cross the knee joint. These are essential for normal function when playing football and running.

The bones support the knee and provide the joint with a rigid structure. The muscles move the joint, the cartilages help carry the weight, the bursae help tendons glide freely and the ligaments stabilise the joint. To function normally, a player needs to have strong and flexible muscles. In addition, the cartilage, and ligaments must be strong. Problems occur when any of these parts of the knee joint are damaged or irritated.

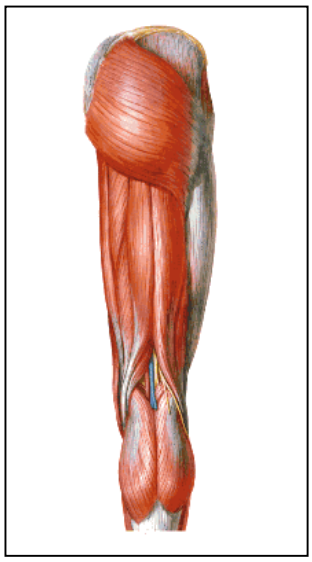

Figure 4: The Hamstring Muscles.

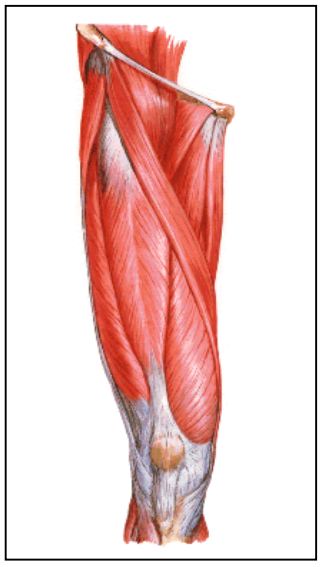

Figure 4: The Quadriceps Muscles.

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