

Mcl term paper



Sport injuries have come to the forefront with the worldwide coverage of all sports. Of these injuries, the most common is knee injuries. A large portion of knee injuries are Medial Collateral Ligament (MCL) strains and tears. Knee injuries are more predominant in contact sports such as football. However, they occur in other sports as well. To understand this injury (definition and diagram) The knee is a very complicated joint, and knee injuries can be very detailed. After receiving first aid most knee injuries are referred to a physician.

Most serious knee injuries in sports can be prevented but the key is to get the athletes to work on strengthening the quadriceps and the hamstring muscle groups. But for those injuries that do occur, knees that are protected by strong muscle groups are usually less severe than those that aren't. Plus Rehab time is reduced if these are strong muscle groups! Knee Anatomy The knee is the largest joint in the human body. Despite its size it is structurally weak! Bones The bones of the knee are relatively unstable and thus are the joints primary weakness. There are four bones of the knee joint!

This is a list of the bones that form the knee joint: the Femur (Thigh Bone) is the largest, longest and strongest bone in the body. The Tibia, the main weight bearing bone of the lower leg, sits underneath the femur. The Fibula is the next largest bone and it is a non-weight bearing bone. It serves as an attachment for the Lateral Collateral Ligament and articulates the knee only with the Tibula. The fourth bone of the knee is the Patella (Knee Cap). It is encased in the patella tendon and moves up and down in front of the knee in the space between the two condyles of the femur. (Insert picture of bones of the knee and title them)

Ligaments and Cartilage The knee has an instability issue due to its boney structure. It's compensated for by the ligament and muscle support. The knee has four important ligaments that help stabilize it. They are on the medial side (inside) of the knee: The Medial Collateral Ligament (MCL) it helps secure the femur to the tibia and also connects to the cartilage of the knee, the medial meniscus. The MCL has the appearance of a broad and flat band. On the Lateral side (outside) of the knee, the Lateral Collateral Ligament (LCL) attaches the femur to the fibula but doesn't connect to the lateral meniscus.

The LCL has a cord like appearance rather than a band. The other two ligaments known as the cruciate ligaments (so named from the latin word meaning cross) form an " X" in the center of the joint. They connect the femur to the tibia. They restrict the anterior and posterior movement of the femur on the tibia. There are two cartilages found in the knee. They are the Lateral and Medial Meniscus. They are tough and fibrous and rest on top of the Tibia and are the shock absorbers of the knee. Insert Anatomy of the Knee: Anterior View Muscles There are 13 muscles the knee depends on for support and stability.

The majority of these muscles are from the thigh (front and back) and the gastrocnemius muscle of the lower leg. The quadriceps muscle group (front of the thigh) and the hamstring muscle group (the back of the thigh) are the major muscles in this area. The adductors and the abductors and the gastrocnemius make up the remainder of these muscles. Other Structures Two other structures in the knee that are of great importance are the Synovial Membrane and the Bursae Sacs. The Synovial Membrane is a large

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closed sac that lines the inside of the knee joint and its main purpose is to lubricate the tendons, ligaments, and bones.

The Bursae Sacs (about 13 of them in the knee joint) serve as cushions where friction between a bone and a tendon may have contact. and or where a prominent bone has friction over another. Mechanism's of injury There are 3 major types of mechanisms for injuries to the MCL Contusion injuries are caused by a direct blow or a falls on or to the knee. Ligament Sprains are caused by blows to the knee from any direction and are compounded when the foot is planted. This causes the ligament to stretch or partially tear. Torsion Injuries are caused by the feet being in a fixed position and the body being twisted.

These types of injuries are most common in football. Other causes of injury to the MCL can be, but are not limited to muscle weakness and fatigue, imbalance and repetition, and poor running mechanics. Signs, Symptoms and Treatments The signs, symptoms and treatments of a Medial Collateral Ligament tend to correlate with the extent of the injury. MCL injuries are graded on a scale of I to III. Grade I MCL Tear: This is an incomplete tear of the MCL. The tendon is still in continuity, and the symptoms are usually minimal. The athlete usually complains of pain with pressure on the MCL.

Treatment: Resting from activity Icing the Injury, Taking Anti-inflammatory medications Most will miss 1 to 2 weeks of play Grade II MCL Tear: This is also considered an incomplete tear of the MCL. The athlete may complain of instability when attempting to cut or pivot. The pain and swelling are more significant. Treatment Resting from activity Icing the Injury, Taking Anti-

inflammatory medications Using a hinged knee brace is common in early treatment Usually a 3 to 4 week period of rest is required before a return to play.

Grade III MCL Tear: This is a complete tear of the MCL Athletes will have significant pain and swelling as well as difficult bending of the knee.

Instability or giving out is commonly found in a Grade III Tear. A brace or immobilizer is usually needed for comfort. Treatment Resting from activity Icing the Injury, Taking Anti-inflammatory medications Using a knee immobilizer Using weight bearing crutches for the first 10 days to 2 weeks Removing immobilizer and bending the knee several times daily A knee brace can be worn as range of motion increases and pain decreases Apply more weight to the knee as pain will allow

Once knee can be flexed to 100 degrees Athlete can ride a stationary bike Crutches can be discontinued once athlete can walk without a limp Jogging can begin once 60% of quadriceps strength is regained(Compared to other leg) Agilities at 80% Athlete is usually sidelined for a minimum of 6 weeks. Complete recovery can take 3-4 months Specialized Testing The Varus and Valgus Stress Test, MRI(Magnetic Resonance Imaging) this test is 90% accurate in diagnosing MCL Injuries, Stress X-Rays, and Ultrasound along with a thorough physical examination should dictate the appropriate treatment for optimal results.