# SUMMARY

The concept that the anterior cruciate ligament is needed to maintain the normal biomechanical function of the knee has become widely accepted. It is now obvious that loss of the anterior cruciate ligament not only produces abnormal kinematics but that it also frequently results in major degenerative changes.

Innumerable studies involving the anatomy, biomechanics, and healing of the anterior cruciate ligament have resulted in improved techniques and identified the procedures that re-establish a functional ligament, at least partially.

Isolated rupture of the anterior cruciate ligament is probably physiologically impossible. However, this ligament can be destroyed without major damage to other ligamentous or capsular structures. other structures that could be damaged are medial collateral ligament either Partial or complete tear, Injury to one or both menisci,or posterior cruciate ligament .Evry structure of these is treated accordingly, bul all needs treatment of tear of ACL.

A decision-making process to establish a regimen of treatment that will meet the patient's needs most satisfactorily must follow the diagnosis of a disruption of the anterior cruciate ligament. No single protocol is applicable to all patients. The final decision must be based on many

variables that are unique for each individual including life-style age degree of instability, and patient cooperation.

The patient must be fully involved in the decision-making process if an appropriate plan of treatment is to be established, and education is essential if the patient is to be effectively involved in the decision-making.

The operation can be postponed until the inflammatory response has subsided to avoid arthrofibrosis and the timing is convenient for the patient. A delay of several months is probably not detrimental if the patient avoids activities that might cause re-injury and additional damage to the joint.

The operative approaches include repair alone, repair with augmentation, reconstruction with the use of autogenous grafts, reconstruction with the use of autogenous grafts and prosthetic augmentation, reconstruction with the use of allografts or a prosthesis, and extra-articular reconstruction (alone or in combination with other procedures).

Arthroscopy is probably necessary for all patients who have an acute injury of the anterior cruciate ligament and are candidates for operative reconstruction especially if there is pain at the joint line, catching, locking, or recurrent effusion persists.

Most orthopedic surgeons who operate to restore the function of the anterior cruciate ligament use an intra-articular autogenous graft in an attempt to duplicate, as closely as possible, the anatomical function of the torn anterior cruciate ligament. The material for this graft is obtained locally. Several structures have been used, including the meniscus, the iliotibial band, the hamstring tendons, and a portion of the patellar ligament. Most surgeons, including our team prefer an intra-articular reconstruction with a bone-patellar ligament-bone autogenous graft for restoration of the anterior cruciate ligament for its high biomechanical properties.

The second choice is double looped hamstring tendon for the avoidance of damage to the extensor mechanism and avoidance of the very common postoperative parapatellar pain, of quadriceps weakness, and the less frequent fractures of the patella or disruption of the patellar ligament that are seen with use of the patellar ligament graft.

A full understanding of the three-dimensional anatomy of the sites of attachment can aid in accurate placement of the tunnels. Accurate femoral attachment of the anterior cruciate replacement is important; the tension of the graft within the properly placed tunnels is also extremely important. Another variable that is important to the success of any reconstruction of the anterior cruciate ligament is the means of fixation of the graft to the host bone.

The arthroscope is an important tool for expanding the diagnosis and treatment of ACL injuries and associated injuries to the menisci, capsular structures and articular cartilage.

Results of the arthroscopic technique are comparable to the open technique and moreover the arthroscopic technique is advantageous in decreasing postoperative morbidity but the surgeon should be experienced in arthroscopic technique before doing the arthroscopic ACL reconstruction.