Anatomy and function: The lateral and medial menisci are two semilunar fibrocartilage discs interposed between the femur and tibia. They are positioned in the joint with the open side of the "C" facing the midline and are held in place by cranial meniscotibial ligaments, caudal meniscotibial ligaments, and meniscocapsular ligaments. The lateral meniscus has an additional ligament which inserts into the caudal intercondyloid fossa of the femoral condyles. This ligament and loose meniscocapsular ligaments of the lateral meniscus render it more mobile than the medial meniscus. Clinically, the lack of mobility of the medial meniscus predisposes it to injury. The menisci are important intra-articular structures; functions attributed to the menisci include: 1.) load transmission and energy absorption, 2.) rotational and varus-valgus stability, 3.) lubrication, and 4.) rendering joint surfaces congruent. Isolated meniscal injuries are not common in the dog. Occasionally, the author has seen isolated meniscal tears involving the mid-body of the lateral meniscus; these have been associated with a fall and twisting motion. Almost all meniscal tears causing clinical lameness in dogs are associated with cranial cruciate ligament ruptures. The incidence of meniscal tears in conjunction with CCL ruptures may be as high as 75% and almost always involve the caudal body of the medial meniscus. This is because the cranio-caudal instability associated with CCL rupture displaces the medial femoral condyle caudally during flexion of the stifle joint. The caudal body of the medial meniscus becomes wedged between the femur and tibia and is crushed upon weight bearing and extension of the joint. The most common type of tear is a "bucket handle tear" of the medial meniscus. This is a transverse tear in the caudal body of the medial meniscus which extends from medial to lateral in a transverse direction. The free portion of the meniscus is frequently folded forward with these tears.

Physical examination findings: Meniscal injury is almost always associated with cranial cruciate ligament injury. Often the client will report a popping sound when the dog walks or one will feel a popping sound upon examination of the stifle. This is due to movement of the "free" section of the bucket handle tear. Not all patients with meniscal tears will present with an audible or palpable click. Close inspection of the medial and lateral menisci at surgery will provide a definitive diagnosis.

Treatment of meniscal injury: Inspection and treatment of meniscal injuries must be completed at the time of CCL reconstruction whether performed through the arthroscope or open joint surgery. The objective of this lecture is to describe the treatment of meniscal injury. There are a number of meniscal treatments to be discussed: 1. Partial meniscectomy, 2. Hemimeniscectomy, 3. Meniscal release. The medial meniscus is most commonly injured (bucket handle tear, radial tears, or fraying). Visualization of the posteromedial compartment (medial meniscus) can be assisted by placing a Hohmann retractor or Stifle distractor to open the medial compartment.
Partial meniscectomy: The most common type of meniscal tear requiring excision is a bucket handle tear of the medial meniscus. The caudal body of the meniscus is torn in a transverse direction. The torn meniscus retains an attachment at the lateral border near the meniscotibial attachment (axial) and at the medial border near the center of the meniscal body (abaxial). The treatment method that results in the least long term OA is partial meniscectomy. Transect the abaxial attachment of the bucket handle with a meniscal knife. Insert a grasping forcep grasp the bucket handle tear near the point of transection. Place slight tension on the torn meniscus with the grasping forceps and transect the axial attachment of the bucket handle. Force the joint open with the Hohmann retractor to inspect the remaining meniscus.

Meniscal release: Meniscal release is a technique described by Slocum to prevent meniscal injury following a TPLO. Slocum believes the TPLO procedure will place the caudal body of the medial meniscus in a position where it can be injured postoperatively. Releasing the meniscus allows caudal retraction of the body to a position where it is unlikely to be torn by the medial femoral condyle.

A meniscal release will eliminate normal hoop stresses in the meniscus. The mechanical result relative to stress on the articular cartilage is the same as performing a total meniscectomy. To perform an outside to in meniscal release, pass a guide needle into the joint just caudal to the MCL. Once the guide pin is visualized and in position, pass a number 11 scalpel adjacent to the pin and transect the body of the meniscus. An intra-articular meniscal release can be performed at the caudal tibial meniscal insertion or through the central meniscal body. Visualize the area to be released and insert the cutting instrument. Transect the caudal meniscotibial ligament.