AIUM Practice Guideline for the Performance of the Musculoskeletal Ultrasound Examination

KNEE EXAMINATION

Knee Exam

- The examination is divided into 4 quadrants.
- Either a comprehensive structured examination of the whole knee or, alternatively, a limited study tailored to the clinical presentation is performed.

Anterior

- Supine with the knee flexed to 30°. Longitudinal and axial scans of the quadriceps and patellar tendons, patellar retinacula, and suprapatellar recess are obtained.
- If clinically indicated, the patella is also scanned to assess for an occult injury. The distal femoral cartilage can be assessed with the probe placed in the suprapatellar space in the axial plane with the knee in maximal flexion.
- Longitudinal views of the cartilage over the medial and lateral femoral condyles are added as indicated.
- The prepatellar, superficial, and deep infrapatellar bursae are also evaluated.
- The distal or tibial aspect of the anterior cruciate ligament may be visualized inserting into the anteromedial tibial plateau with the knee in maximum flexion and the transducer in the longitudinal plane of the ligament.

Medial

- Supine with slight flexion of the knee and hip with slight external rotation of the hip.
- Alternatively, the patient may be placed in the lateral decubitus position.
- The medial joint space is examined.
- The medial collateral ligament, the pes anserine tendons and bursa, and the medial patellar retinaculum are scanned in both planes.
- The anterior horn and body of the medial meniscus may be identified in this position, particularly with valgus stress.
- If meniscal pathology is suspected either clinically or by ultrasound, further examination with MRI imaging is advised.

Lateral

- Supine with the ipsilateral leg internally rotated or in a lateral decubitus position.
- A pillow may be placed between the knees for comfort.
- From posterior to anterior, the popliteus tendon, biceps femoris tendon, LCL, ITB and bursa are scanned. The lateral patellar retinaculum can also be assessed in this position (as well as in the anterior position).
- The joint line is scanned for meniscal pathology or cysts.

Posterior

- Prone with the leg extended.
- The popliteal fossa, semimembranosus, medial and lateral gastrocnemius muscles, tendons, and bursae are assessed.
- To confirm a popliteal cyst, the comma-shaped extension toward the posterior joint has to be visualized sonographically in the posterior axial scan between the medial head of gastrocnemius and semimembranosus tendon.
- In addition, the posterior horns of both menisci can be evaluated.
- The PCL may be identifiable in a sagittal oblique plane in this position.
- Exam of the intercondylar region of the femur in the transverse plane can evaluate for injury to the ACL, although MRI should be considered for this indication.