Soft Tissue, Quadriceps, Patellar & Achilles Tendon Ultrasound

I. Patient Preparation

a. No prep required prior to patient exam.
b. Patient position is dependent on anatomy being scanned.

II. Equipment

a. High frequency linear transducer, at least 12 MHz.

III. Exam specific image requirements

- Always label laterality on the images.
- Images acquired and labeled in the long axis (LA) and short axis (SA).
- Obtain cine clips as necessary to document any abnormalities.

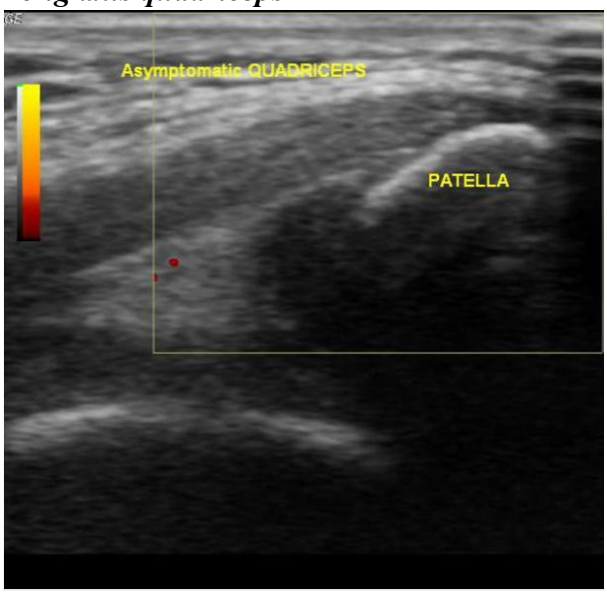
❖ Quadriceps Tendon

Patient lying supine on stretcher with knee flexed and foot flat on stretcher.

With inferior edge of transducer over the patella:

1. Long axis quadriceps tendon
   a. Scan distal to proximal until the myotendinous junction. Document distal, mid, and proximal segments.
2. Long axis quadriceps tendon with power Doppler
   **Turn transducer 90˚ and begin over patellar insertion.
3. Short axis quadriceps tendon *(label the medial or lateral side of the screen)*
   a. Scan distal to proximal until all 4 muscles of the quadriceps are visualized. Document distal, mid, and proximal segments.
4. Short axis quadriceps tendon with power Doppler.

Long axis quadriceps



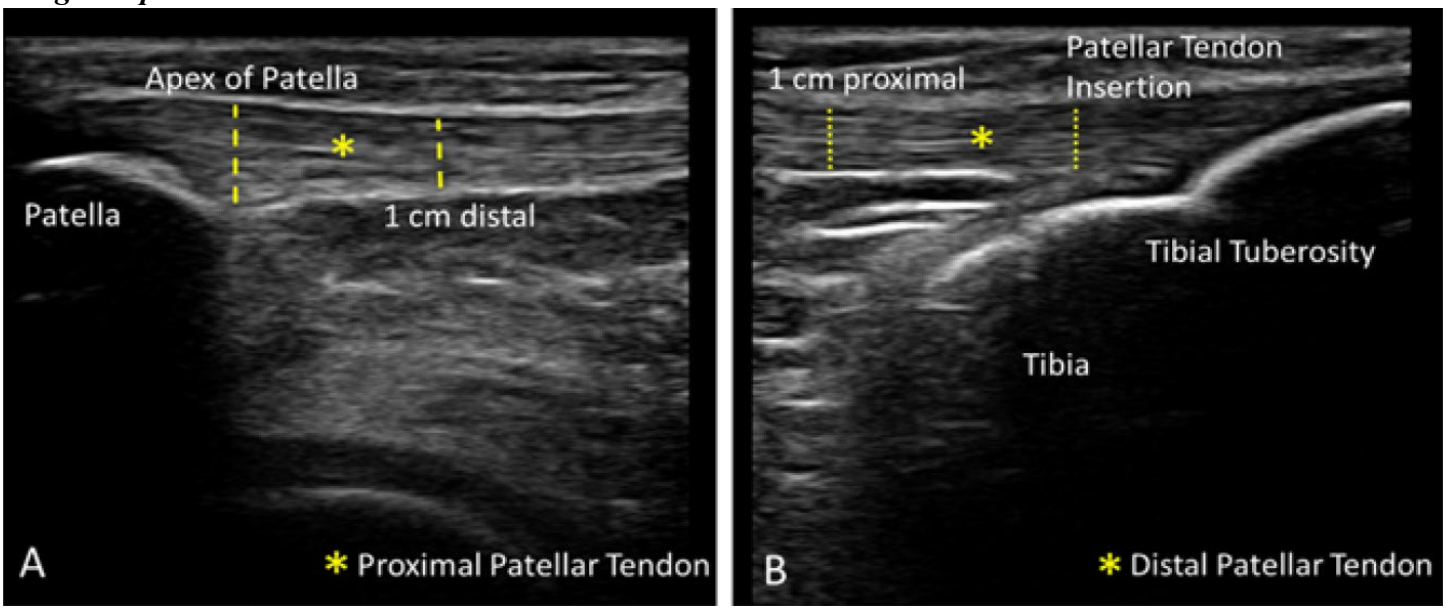
https://radiopaedia.org/cases/quadriceps-tendinosis#image-4808520

❖ **Patellar Tendon (aka Patellar Ligament)**

Patient supine on stretcher with knee slightly flexed. Place a pillow under the knee for support.

1. Long axis patellar tendon
   a. Proximal edge of transducer over distal patella.
   b. Scan proximal to distal, imaging until the distal insertion onto the tibia. Document proximal, mid, and distal segments.
2. Long axis patellar tendon with power Doppler.
   **Turn transducer 90˚ over distal patella.
3. Short axis patellar tendon *(label the medial or lateral side of the screen)*
   a. Scan proximal to distal. Document proximal, mid, and distal segments.
4. Short axis patellar tendon with power Doppler

Long axis patellar tendon



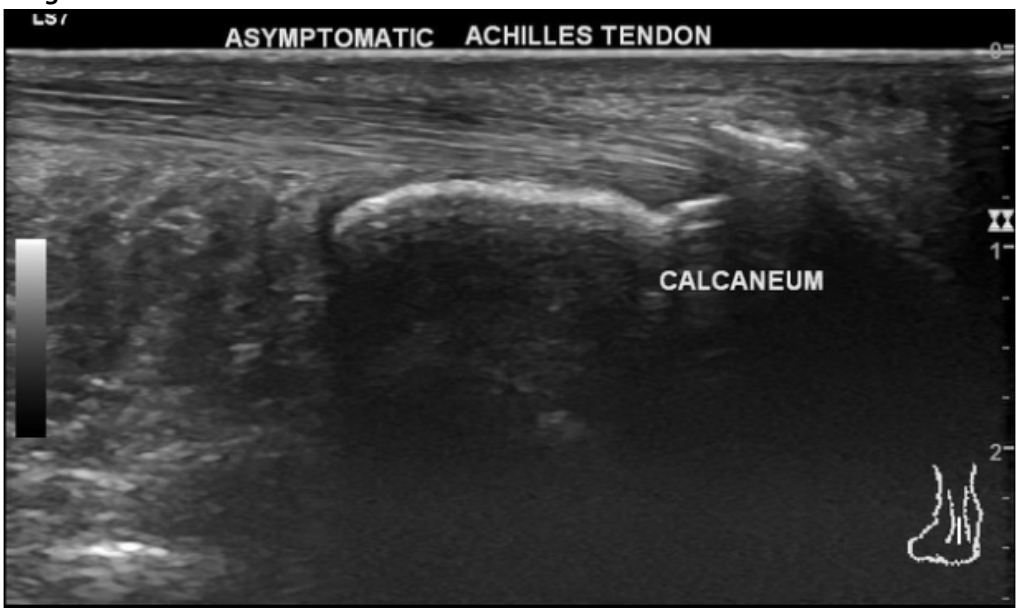
https://journals.sagepub.com/doi/abs/10.1177/2325967121S00414

❖ **Achilles Tendon**

Patient lies prone on stretcher, foot over end of stretcher and dorsiflexed (toes drawn back toward shin)

1. Long axis Achilles tendon
   a. Start over proximal edge of calcaneus at insertion.
   b. Scan distal to proximal until the myotendinous junction, documenting distal, mid, and proximal segments.
2. Long axis Achilles tendon with power Doppler.
   **Turn transducer 90˚ and start at distal Achilles tendon.
3. Short axis Achilles tendon *(label the medial or lateral side of the screen)*
   a. Scan distal to proximal. Document distal, mid, and proximal segments.
4. Short axis Achilles tendon with power Doppler.

Long axis Achilles tendon



https://radiopaedia.org/cases/achilles-tendon-tear-13

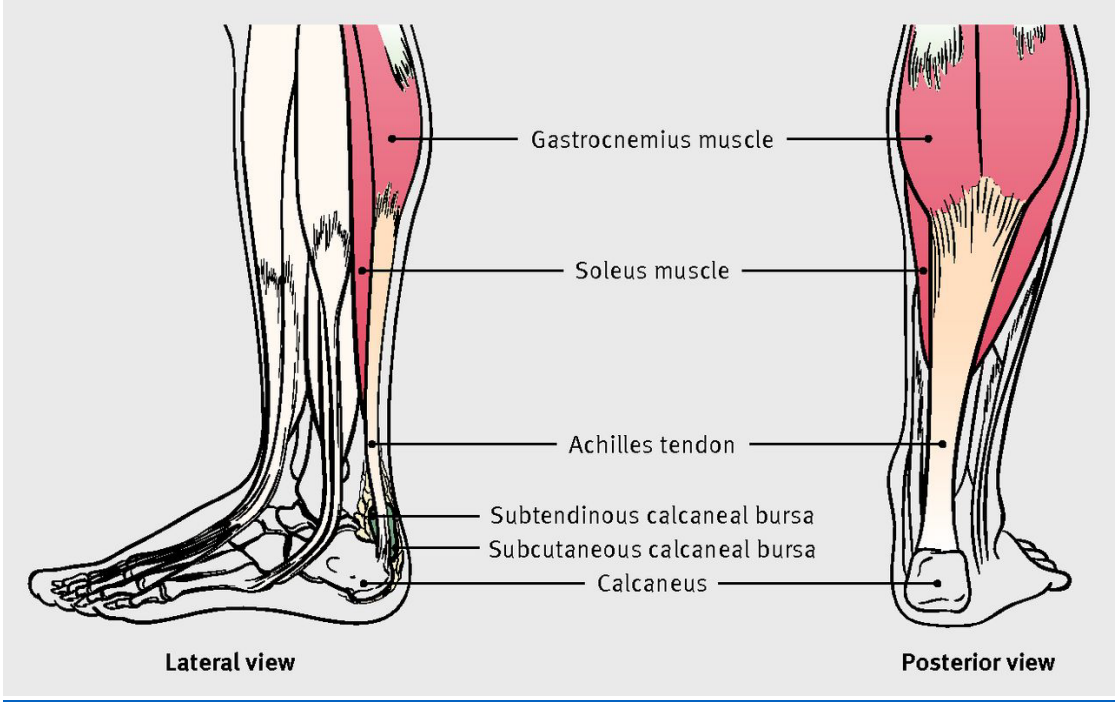
❖ Miscellaneous soft tissue

Patient position determined by location of area of concern. Use a body marker, if available.

1. Long {label anatomy} area of concern.
    a. Acquire at least 3 images of area of concern, imaging through entire area of concern lateral to medial.
    b. If an abnormality is seen, obtain length and AP measurements.
2. Long {label anatomy} area of concern with color or power Doppler.
    *Obtained even if no abnormality is seen.
3. Trans {label anatomy} area of concern.
    a. Acquire at least 3 images of area of concern, imaging through entire area of concern superiorly to inferiorly.
    b. If an abnormality is seen, obtain a width measurement.
4. Trans {label anatomy} area of concern with color or power Doppler.
    *Obtained even if no abnormality is seen.

❖ Anatomy References

http://www.bmj.com/content/346/bmj.f1262



https://radiopaedia.org/cases/knee-ligaments-grays-illustrations#image-54038091