

ACL Postoperative Imaging

- Relatively uniform low signal in graft for 1st few weeks after surgery
- Graft begins "ligamentization" about 6 weeks after surgery
- Areas of increased signal on T2WI MR are normal > 4 years after surgery

Normal Graft

- Correct placement of ACL tunnels resulting in ACL graft slope angle just behind Blumensaat line, the projection created by the angle of the roof of the intercondylar notch toward the tibia.



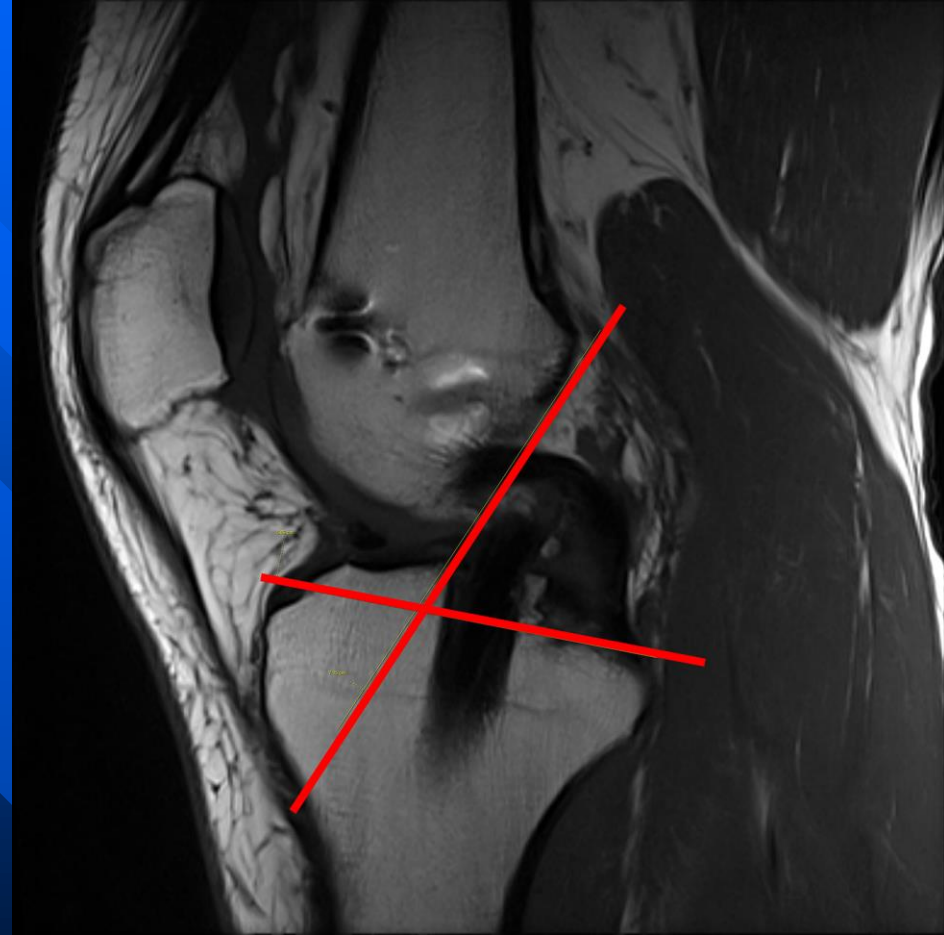
Anterior arthrofibrosis (cyclops lesion)

- Focal anterior arthrofibrosis (cyclops lesion) in a patient 1 year after ACL repair.
- The graft is separate from the lesion and is normal.
- The patient complained of pain and limited knee extension

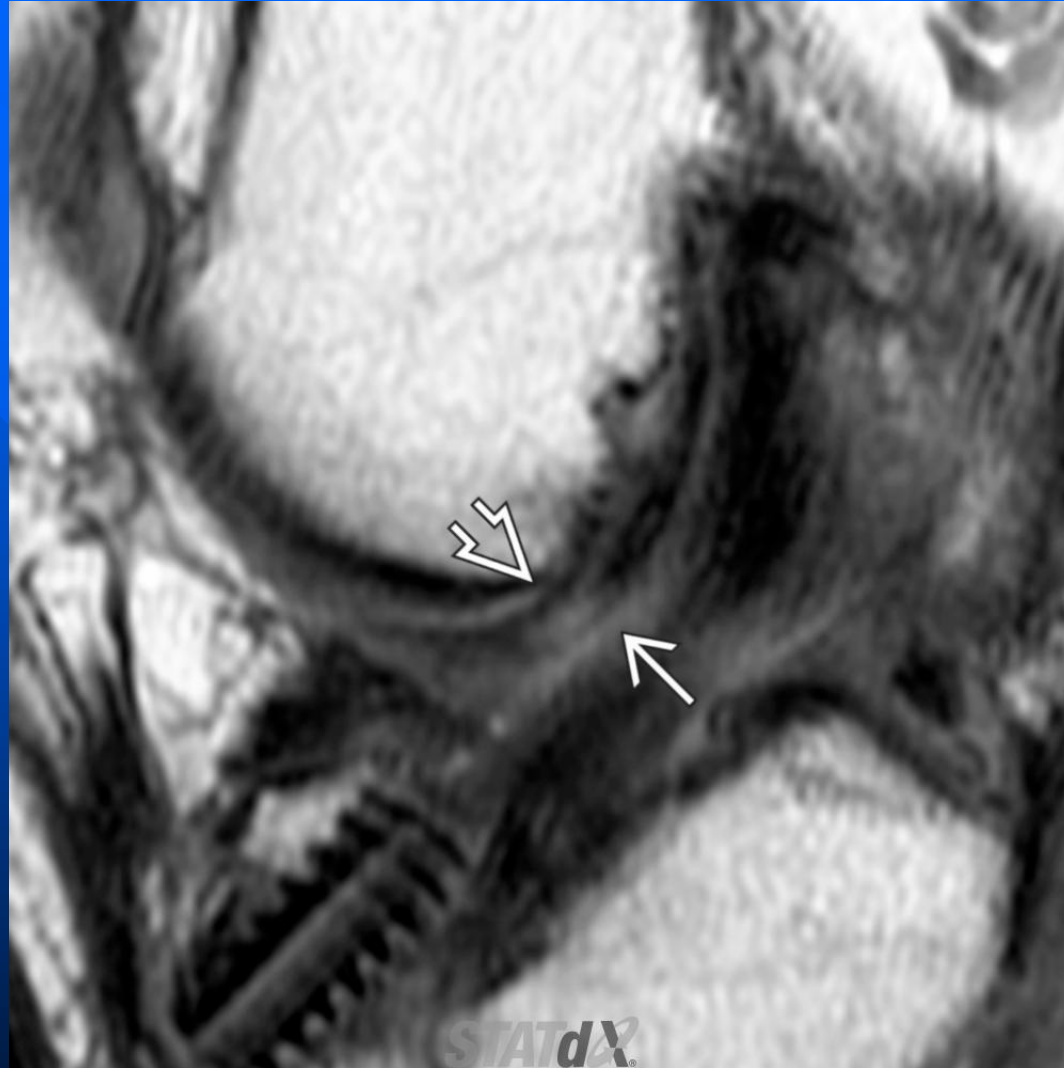


Blumensaat line

- Tibial tunnel is too far back and this is the main reason of joint instability.
- The oblique vertical red line represents **Blumensaat line**. The position of the tibial tunnel should be parallel but posterior to the slope of the Blumensaat line (intercondylar roof).



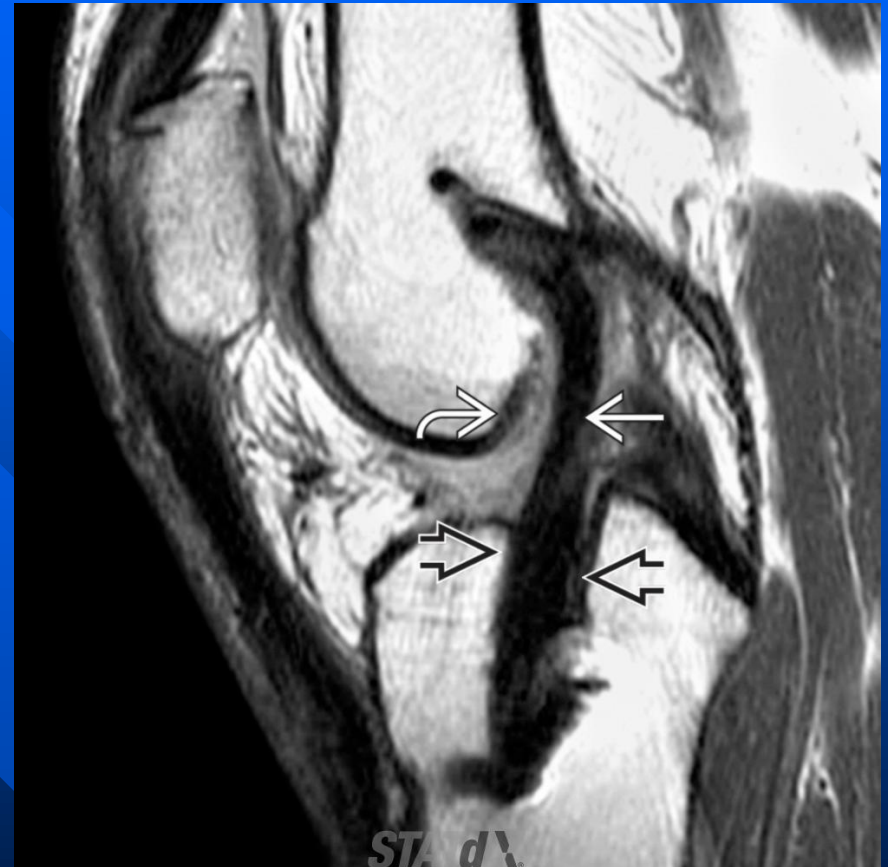
Roof impingement



Sagittal PDWI MR shows intercondylar notch roof impingement of an ACL graft. There is posterior bowing of the graft and relatively focal increased signal intensity (white solid arrow) at the point of contact with the notch roof (white open arrow).

Posterior placement of tibial graft tunnel

- Resulting in vertical orientation of ACL graft . Note that the slope of the intercondylar notch roof projects a shallower angle.



Entrapped ACL stump



Sagittal PDWIFS MR shows an intact ACL graft (white curved arrow) derived from hamstring elements. A well-defined linear focus of low signal (white solid arrow) is seen anterior to the graft with attachment to the anterior tibial spine (white open arrow). This is the entrapped stump of the native ACL.