Q Angle and Locking of the Knee

Deviation from the vertical (the tibia) to a line along the femur (pull of quadriceps). Wider the pelvis, the greater Q angle (F > M)
Offset tends to pull patella laterally. 3 factors avoid dislocation

1. Insertion of lower fibres of vastus medialis into medial side of patella
2. Stronger medial retinacular fibres of knee capsule
3. More anteriorly protuberant lateral condyle of lower femur. Note that lateral condyle is smaller than medial one but it protrudes further anteriorly

THE Q ANGLE AND PATELLA DISLOCATION

LOCKING

Full extension → Taut anterior cruciate → No further symmetrical extension → Medial femoral condyle moves back - lateral condyle moves forwards → Femur internally rotates on tibia on axis of anterior cruciate ligament

Tensor fasciae latae & gluteus maximus tighten iliotibial tract → Knee "hyperextends" and locks

UNLOCKING

Popliteus externally rotates femur on tibia → Locked ligaments loosen → Hamstrings can then flex knee