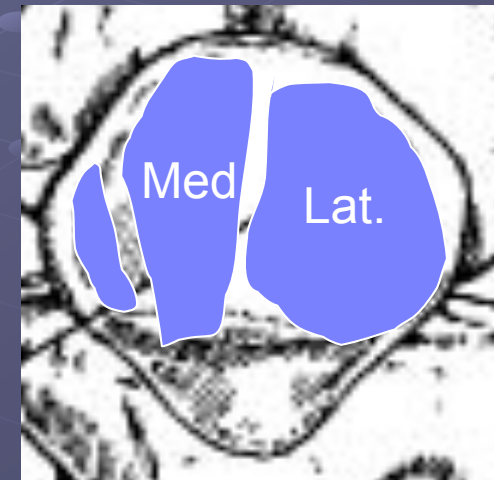


Patellar Dislocation



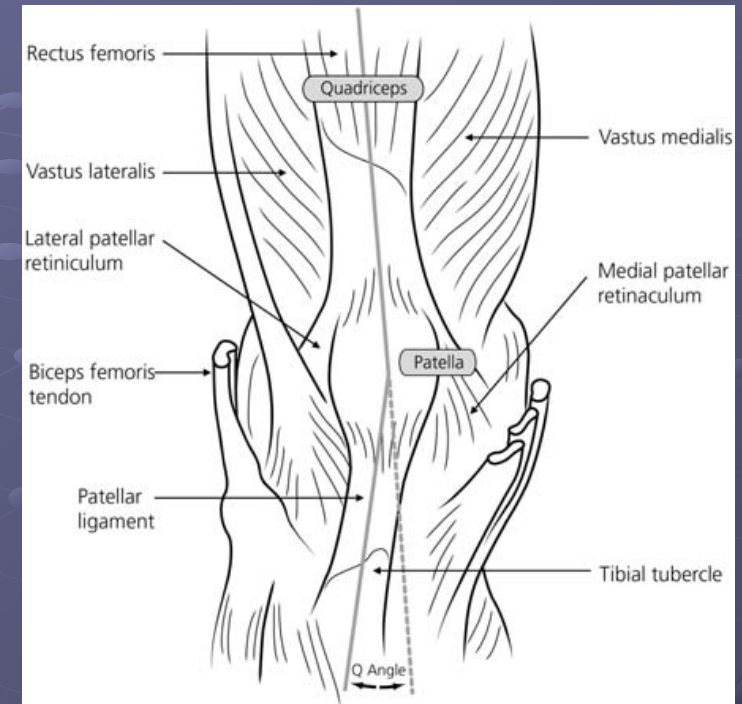
Anatomy

- Patella is sesamoid bone
 - Largest in body
- Articular surface
 - Covered in hyaline cartilage
 - Medial and lateral facet
 - Superior
 - Middle
 - inferior
 - Odd facet
- Tracking
 - 0-18 deg. flex : lateral
 - 18- 45 deg. Flex: medial
 - > 45 deg. Flex :lateral



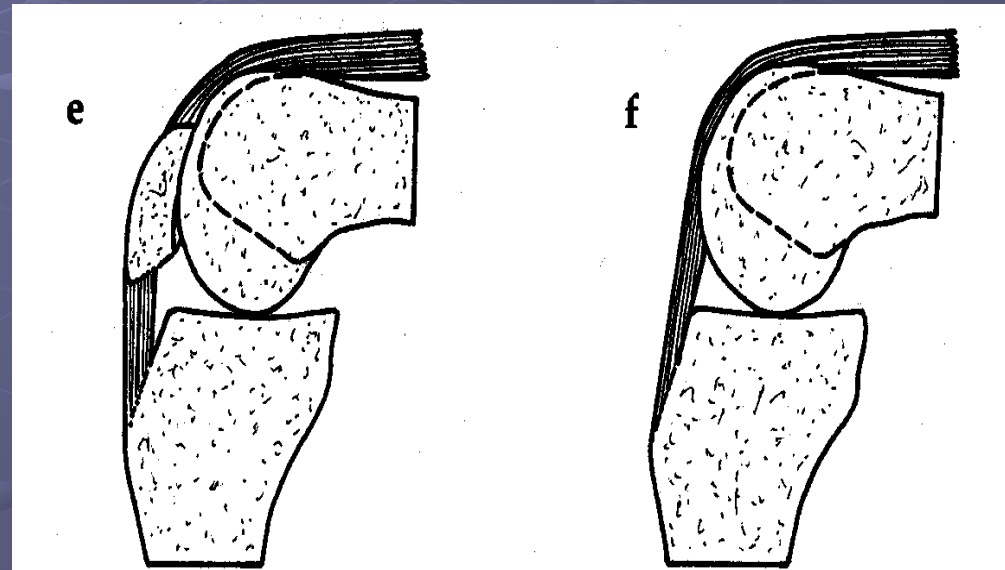
Anatomy (continued)

- Supported by muscle bone and ligamentous structures
 - Muscle- through quad tendon
 - Medially- vastus medialis
 - VMO aligned at 65 degrees to the vertical axis.
 - Laterally- vastus lateralis
 - Superiorly- rectus femoris and vastus intermedius
 - Bone-
 - Trochlear groove
 - Ligamentous-
 - Patellar ligament
 - Patellar retinacula
 - Lateral
 - Medial



Function

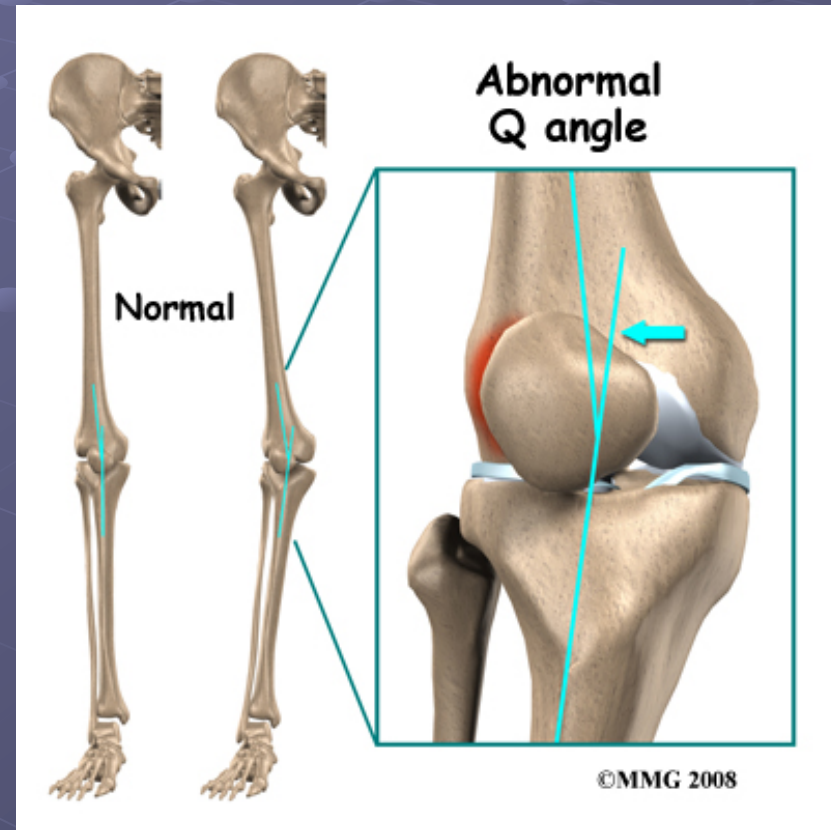
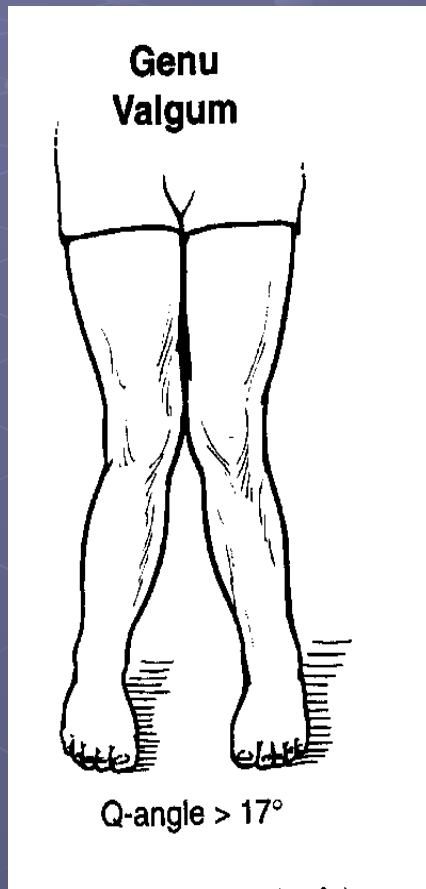
- Increased efficiency of quadriceps
 - Changes line of pull
- Protection of anterior knee joint
- Absorption of patellofemoral joint reaction forces (forces transmitted through a joint's articular surface)



Predisposition

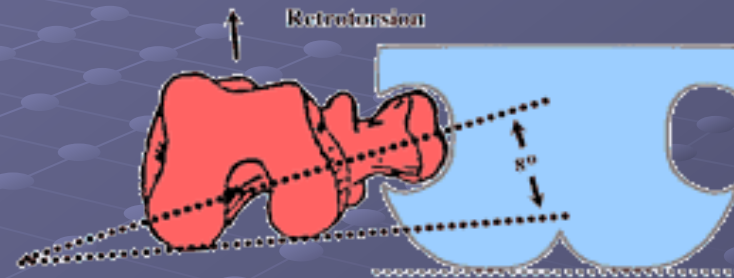
- Skeletal abnormalities
- Strength imbalance of the quadriceps
- Strength imbalance in fibrous tissues
- Compensatory movements in knee due to abnormal foot movement
 - i.e. Excessive foot pronation cause tibia to IR

Predisposition :Skeletal Abnormalities- Q-angle

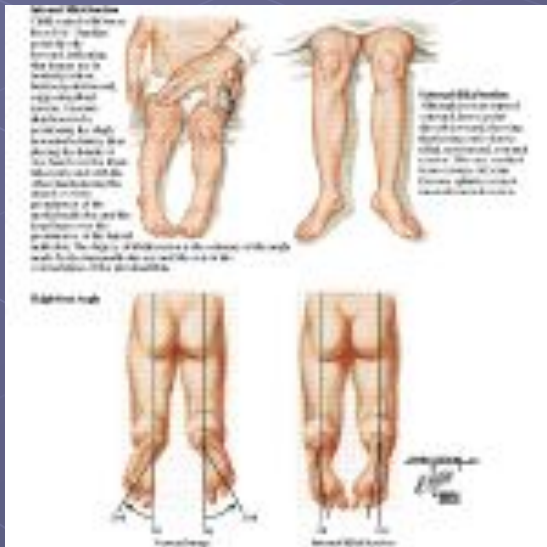


Predisposition: Skeletal Abnormalities

- Hip retro version
- Tibial torsion

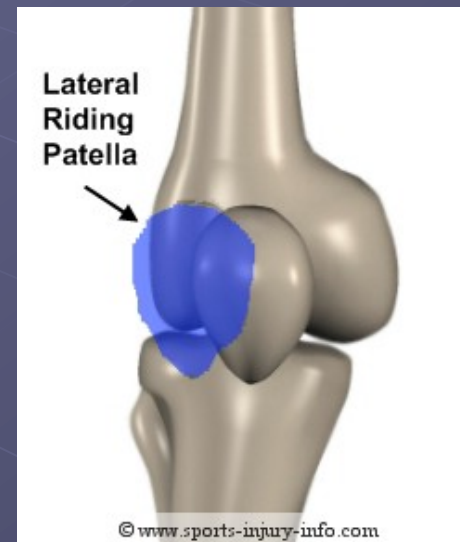
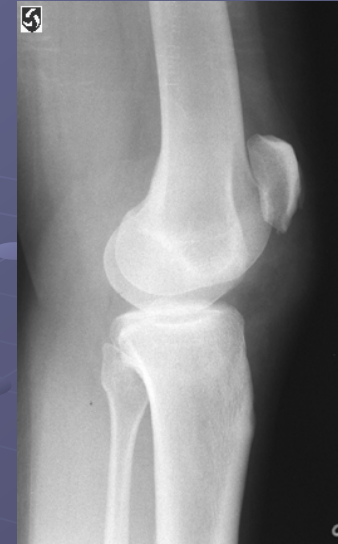


RETROVERSION is a decrease in the angle of the head and neck of the femur relative to the frontal plane of the body. This represents a normal femur that is abnormally positioned relative to the acetabulum. The net effect of this positional relationship is an internally rotated leg



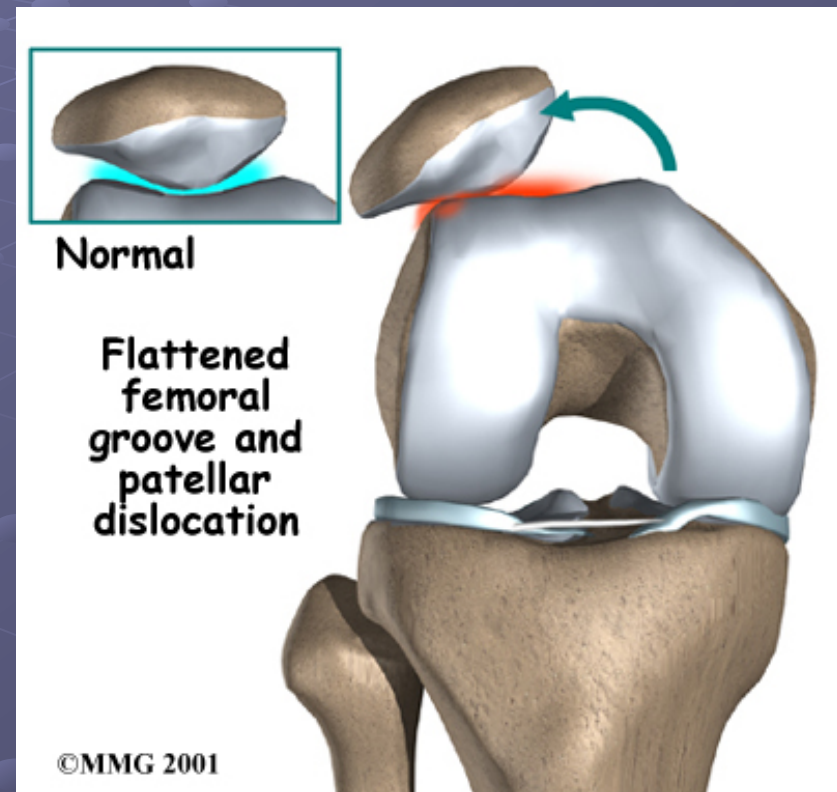
Predisposition: Skeletal Abnormalities- Patella Position

- **Patella Alta**
 - High riding patella
 - Abnormally long patellar ligament
- **Patella Baja**
 - Low riding patella
 - Abnormally short patellar ligament
 - Arthrofibrosis
- **“Frog eyed” patella**
 - High riding and lateral
 - Hip retroversion
 - External rotation of femur
 - External rotation of tibia



Predisposition: Skeletal Abnormalities- Patella Articular Surface

- Flattened posterior surface or trochlear groove
 - Commonly underdeveloped in growing children



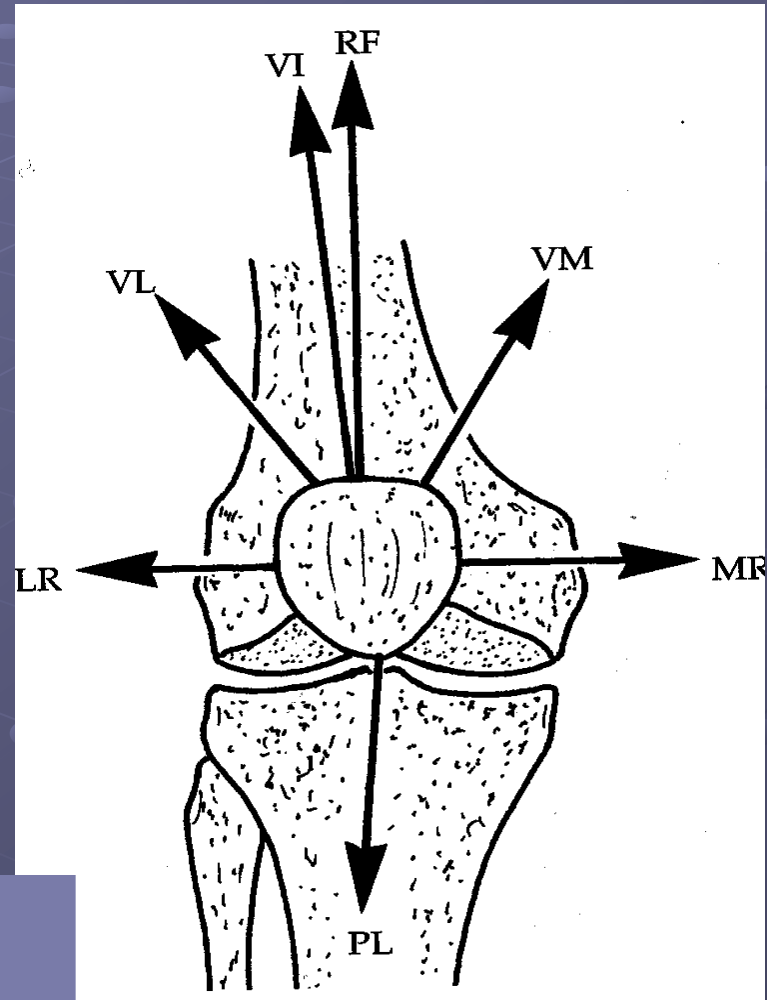
Predisposition: Muscular and Fibrous Tissue Imbalance

● Tight

- Lateral retinaculum
- IT band (LR origin)
- Vastus lateralis

● Loose

- Vastus medialis
- Medial retinaculum



Assessment

- Typical s/s

- Acute- typically lateral blow while knee in 20-30 deg. of flexion
- Deformity- displaced patella
- Large, bloody effusion (w/i 24 hrs)
- Pt tender over VMO and Med. Retinaculum
 - Generally tear
- Instability
 - Positive apprehension test



- The actual mechanism



Axial MRI scan demonstrating tears of the VMO and medial patellofemoral ligament

History

- Tackled from behind and fell on flexed right knee
- No previous knee injury
- Pain- 9/10
- Unable to continue

Inspection

- Patella had been laterally displaced
- Swelling
- Point tender over medial retinaculum and inferior pole of patella
- Positive Apprehension

Management

● Initial

- Manage pain
- Control swelling
- Reduction (physician)- Extend the knee while pushing the patella medially

● Imaging

- MRI

● Possible surgery

Diagnostic Imaging

- Athlete's MRI revealed
 - Athlete had osteochondral fragment.
 - Medially torn patellar ligament.
 - Stretched medial retinaculum.

Treatment

● Conservative

- RICE
- ROM
- Strength
- Functional activity

● Surgical

- Surgery in acute patellar dislocations is indicated for intra articular fragments or for those who have a abnormality which would cause further subluxations/ dislocations

Surgical Procedure (3 for 1)

- Lateral Release.

- Division of retinaculum no higher than superior pole of patella or muscle fibers of vastus lateralis.

- VM reattached from 5mm to 10mm distally.

- Patella relocated medially.

Post-surgical Management

● Progressive

- No weight-bearing to partial
- Brace locked at 0 degrees
- Friction massage over scar
- Isometrics
- Electric Stimulation
 - Russian
 - Re-education
 - Strength
- Stationary Bike
- Brace removed
- Wall squats 45 deg knee flexion
- OKC exercises

Journal Article

- Why chosen
- When surgery to be performed
- Q angle, hip rotation, ligament laxity, patella alta, congruence angle (relation intercondylar ridge to sulcus angle), Laurin angle (axial tilt - abnormal if open medially), patellar overhang
- Epidemiology-100% lateral overhang
- 72% injured during athletics
- 69% b/w 10-19 years old
- 50% patients had patella alta
- 9% had family history