Patellar dislocation and subluxation

Description
Patellar dislocation and subluxation are injuries to the kneecap (patella) affecting the joint it forms with the thigh bone (femur). The patella is a V-shaped convex bone that sits within a V-shaped concave groove of the femur, known as the trochlea.

Patellar dislocation is a condition in which the patella is displaced from its normal position and no longer sits in the trochlea. Patellar subluxation is a condition in which the patella is not centered within the trochlea, but the joint surfaces still touch; thus the patella is not in normal relationship to the trochlea. This tends to occur in adolescents and young adults.

Common signs and symptoms
- Severe pain when attempting to move the knee and a feeling of the knee giving way
- Tenderness, swelling and bruising of the knee
- Numbness or paralysis below the dislocation from pinching, cutting, or pressure on the blood vessels or nerves (uncommon)
- Often patellar dislocation to the outer side of the knee, causing an obvious deformity; often relocates on its own when the knee is straightened, leaving no deformity; damage is the same in both cases. A lump on the inner knee, which is the end of the inner part of the thigh bone (femur)

Causes
- Direct blow to the knee
- Twisting or pivoting injury to the lower extremity, such as with cutting (rapid change of direction)
- Powerful muscle contraction
- Congenital abnormality (you are born with it), such as a shallow or malformed joint surfaces

Risk of further injury
- Participation in contact sports (football, soccer), sports that require jumping and landing (basketball, volleyball), or sports in which cleats are worn on shoes
- Individuals with wide pelvis, knocked knees, or shallow or malformed joint surfaces
- Previous knee sprains or patellar dislocations
- Poor physical conditioning (strength and flexibility)
Initial treatment
After immediate reduction (repositioning of the bones of the joint), treatment consists of ice and medications to relieve pain. Reduction can be performed without surgery, although surgery may be necessary to remove loose fragments of bone or cartilage caused by the dislocation or reduction, or to help prevent further dislocation.

Elevating the injured knee at or above heart level helps in reducing swelling. Immobilization by splinting or bracing up to 6 weeks may be recommended to protect the joint while the tissues heal.

After immobilization, stretching and strengthening of the injured, stiff, and weakened joint (due to immobilization and the injury) are necessary. These may be done with or without the assistance of a physical therapist or athletic trainer.

Pain control
Nonsteroidal anti-inflammatory medications such as aspirin and ibuprofen (do not take within 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician. Contact your physician immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.

Stronger pain relievers may be prescribed as necessary by your physician. Use only as directed.

Swelling control
Cold is used to relieve pain and reduce inflammation for acute and chronic cases. Cold should be applied for 10 to 15 minutes every 2 to 3 hours for inflammation and pain and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage. Use Ice for the first 72 hours after the initial injury.

Lower body stretching
All stretches should be performed before and after any activity. Do three sets of each stretch and hold each stretch for 25-30 seconds.

Hamstring Stretching

Straight leg/sitting
- Sit on a table with just one leg on the table and the other off the table.
- Make sure your back remains flat and not arched forward.
- Lean your whole upper trunk forward until you feel a stretch and hold that position.
Straight leg/lying
- While lying on your back pull your thigh up to make your hip into a 90 degree angle.
- Maintain your grip around your knee and straighten out your leg until you feel a stretch and hold that position.

Bent knee
- While lying on your back, pull your knee to your shoulder until you feel a stretch and hold that position.
Quad stretching

Side lying:
- While lying on your side pull knee back by holding your ankle until you feel stretch and hold that position.

Standing
- While standing place your knee on a chair or stool and either lean forward or grab ankle to further pull knee into flexion until you feel a stretch and hold that position.
Groin stretching
- Sit with knees flexed and feet together.
- Slowly lower your knees while holding your ankles until you feel a stretch and hold that position.
Achilles

- Stand with involved leg back.
- Keep heel on floor and gently lean forward until feel stretch and hold that position.
- Stretch should be performed with knee straight, then with knee bent.