The patella is a small bone that is located in the stifle (knee) joint. It is positioned in the junction of the quadriceps musculature and the patellar ligament (Fig. 1) and sits within the cartilage covered trochlear groove in the femur. The patella glides along this groove and assists in the extension and flexion of the joint. Patellar luxation (PL) occurs when the patella pops or slides out of the trochlear groove (Fig. 2). Most frequently it moves to the inside of the knee (medial), but outside (lateral) luxations can also occur. Patellar luxations are a congenital problem and commonly affect both hind limbs. Although one leg may be more symptomatic than the other leg, PL can also be the result of trauma.

When the patella luxates it can cause a variable degree of pain. Many dogs with PL will intermittently skip or hold the affected leg up until the patella goes back into a normal central position. If both hind legs are symptomatic the dog may be reluctant to walk or jump up. Chronic PL results in stretching and thickening of the joint capsule, damage to the cartilage and strain and potential rupture of the cruciate ligament, which is located in the stifle joint. PL can also affect the development of young growing bone resulting in a marked bowing and curvature of the hind limbs.

Severity of PL is categorized by a grading scale. Grade 1 PL are generally mild and intermittent. The severity of PL becomes more severity to Grade 4 where the patella is permanently fixed in a luxated position, often with severe secondary bone and joint changes. Surgical repair is indicated in symptomatic dogs and preferably before the severity of the PL progresses to Grade 4.

Surgical correction involves a combination of:
1. Trochleoplasty- deepen the trochlear groove
   - Fig. 3 – Block trochleoplasty
2. Release of restrictive fibrous tissue
3. Imbrication or tightening of stretched tissue
4. Placement of anti-rotational sutures
5. Moving the attachment of the patellar ligament on the tibial tuberosity a few mm to centralize the patella (Fig. 4)

Recovery involves limited activity for 2 months. (i.e. no running or jumping) to allow the surgical site to heal. Once the patella is stabilized in a central position discomfort is resolved and the use of the leg improves. Prognosis is very good for recovery in Grade 1-3 PL cases. Patients with Grade 4 PL may be too severe or chronic to correct or require more surgical procedures than described. In these patients lameness can usually be improved but may not completely resolve.

Illustrations are reproduced from the following sources:
Image 1, 2 and 4: Fossum TW. Small Animal Surgery. 2nd ed. Mosby, St Louis, 2002