The patella (kneecap) sits in the groove of the femur (thigh bone) and slides evenly up and down within this groove as the knee bends and straightens – this is called patella tracking (Figure 1 left).

The quadriceps is a group of muscles on the front of the thigh which straighten the knee. They attach to the patella (kneecap), which joins the four individual quadriceps muscles to one common tendon (Figure 2).

A patella dislocation occurs when the patella moves sideways out of the patella groove (Figure 1 right). This often occurs with a twisting injury. The episode is associated with pain and swelling of the knee. The patella often ‘reduces’ (relocates) spontaneously, however occasionally sedation and assistance is required at a hospital Emergency Department.

X-rays of the knee are taken to exclude any fracture or bony fragments. An arthoscopy of the knee is performed if a loose bony fragment needs to be removed.

Following reduction of the patella, the knee is rested in a splint and crutches are used for mobility. A RICE regime (rest, ice, compression, elevation) for the first 24–48 hours assists in reducing swelling and pain of the knee. Physiotherapy treatment should commence once pain has eased.

Physiotherapy concentrates on strengthening the quadriceps muscle, particularly the inner muscle known as the VMO (Figure 3). A patella dislocation causes weakness in VMO and injury to medial (inner) structures of the knee. This may result in lateral patella tracking i.e. the patella moves slightly to the outside as the knee bends. The muscles must be exercised vigorously, since ongoing VMO weakness puts the child at risk of further patella dislocations.

Children may return to their sports and physical activity once they are pain-free and have regained normal quadriceps strength (usually 8–12 weeks). If the child continues to experience patella dislocations, a referral to an Orthopaedic Surgeon may be required.