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).

Recurrent patella dislocation occurs when the patella frequently moves sideways out of the patella groove (Figure 1 right). These episodes may be associated with pain and/or swelling of the knee. The patella often ‘reduces’ (relocates) spontaneously. One or both knees may be affected.

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

The optimal functioning of the quadriceps mechanism depends on correct alignment of the patella in the patella groove of the thigh bone. This requires a balance between the muscles and structures attaching to the patella. On the outside, vastus lateralis, ITB and lateral retinaculum provide a strong outward pull. Opposing this force on the inside of the patella is just one active stabilizer – 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 outwards as the knee bends.

Recurrent patella dislocation tends to occur in adolescent females and those with ligamentous laxity or joint hypermobility. Certain features including a high-sitting or small patella, shallow patella groove, genu valgum (‘knock knees’) and tight lateral structures may also contribute to recurrent patella dislocation, once an initial dislocation has occurred.

The initial treatment of recurrent patella dislocations is physiotherapy, which concentrates on strengthening the quadriceps muscle, particularly the VMO. This muscle must be exercised vigorously, since ongoing VMO weakness puts the child at risk of further patella dislocations.

If a child fails to respond to an appropriate physiotherapy program and continues to experience patella dislocations and/or pain when performing normal daily activities, surgical intervention may be required to realign the patella.

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