A/Prof Nigel Hope
ORTHOPAEDIC SURGEON
MB BS, PhD, FRACS, FAOrthA

Knee and Hip Surgery
Sports Injuries

Provider No 057121MH

Patient Information Sheet

ANTERIOR KNEE SYNDROME

GENERAL INFORMATION

KNEE MECHANICS

Load is transferred across the knee using two different joints. The horizontal tibio-femoral joint lies between the thigh bone (femur) and leg bone (tibia) and is used when walking on flat ground. The vertical patello-femoral joint is at the front of the knee between the kneecap (patella) and thighbone (femur) and is used once the knee is bent more than 30°. This occurs particularly when moving from a sitting to a standing position, stair climbing, squatting or kneeling. The muscles at the front of the thigh are the quadriceps and straighten the bent knee. The muscles at the back of the thigh are the hamstrings and bend the straight knee.

JOINT PATHOLOGY

Articular cartilage is a thin, highly resilient, low friction surface that covers the ends of bones and all joint surfaces. This tissue does not have a blood supply and does not completely repair after it has been damaged. It can “smooth off” or partially repair with fibrous tissue (fibro-cartilage). The damaged area is much rougher than undamaged articular cartilage, transfers loads much less efficiently and is easily damaged more by overloading. Osteoarthritis (degenerative joint disease) results if the area continues to be damaged. Obviously, any damaged area should be protected.

ANTERIOR KNEE SYNDROME

The patello-femoral joint is also known as the anterior compartment of the knee and is frequently injured through either a direct blow (such as when falling onto the front of the knee) or during a repetitive or single lunging incident (such as stair climbing). Pain is caused by anterior compartment articular cartilage injury. A painful knee does not ‘want’ to move and the thigh muscle (quadriceps) ‘goes on strike’ and is not used so that it wastes and becomes smaller and weaker.

Weakened quadriceps can cause the kneecap (patella) to run up the side rather than in the middle of its groove in the thighbone (femoral trochlear). This abnormally loads one side of the joint and further articular cartilage damage may result.

The weak quadriceps can not balance the hamstrings which shorten and tighten. A bent-knee walking position develops and, even on flat ground, the anterior compartment is loaded and damaged. This is also known as the ‘hamstrung knee’

SYDNEY CBD
mi-Clinic
Level 2
44 Market St
Sydney NSW 2000

Correspondence to SAN CLINIC

SAN CLINIC
Suite 601
Sydney Adventist Hospital
185 Fox Valley Rd
Wahroonga NSW 2076

Ph 9473 8648
www.nigelhope.com.au

A/Prof Nigel Hope
ORTHOPAEDIC SURGEON
MB BS, PhD, FRACS, FAOrthA

Knee and Hip Surgery
Sports Injuries

Provider No 057121MH

Patient Information Sheet

ANTERIOR KNEE SYNDROME

MANAGEMENT

1. ***Avoid further damage to the anterior compartment.***

   Any activity where the knee is loaded and bent more than 30° should be avoided. This includes repetitive rising from a sitting to a standing position, lunging, squatting, kneeling and stair climbing.

2. ***Strengthen the weak quadriceps.***

   Straight leg raising exercises are the only way to strengthen the quadriceps without damaging the anterior compartment. These are performed lying on a bed with the uninjured knee and hip flexed to 90° to protect the back. The affected side's ankle is held at 90° and the straightened knee is then elevated to 60°. Gradually build up to four sets of twenty repetitions (total of 80 reps) three times per day.

   Most exercises commonly recommended to strengthen the quadriceps involve bending the knee more than 30^0. This includes leg extensions, lunges, partial or full squats. ***These exercises will damage the anterior compartment even more and should never be performed.***

3. ***Stretch the tight hamstrings.***

   The hamstrings need to be at optimal length to prevent flexed–knee walking. The best hamstring stretch is a standing stretch with the foot of the affected side placed on a bench at table height. The trunk is then lifted 'up and over' the thigh and held for 5 seconds to gently stretch the hamstring compartment. Perform these with the SLR exercises and gradually build up to three sets of five repetitions (total of 15 reps) three times per day.

4. ***Oral nutraceuticals.***

   Cosamin DS (glucosamine / chondroitin sulphate) increases range of motion and reduces pain in joints with early articular cartilage damage. An anti-inflammatory effect results from ***glucosamine and chondroitin*** reducing inflammatory mediators. The anabolic (building up) action results from ***glucosamine*** increasing proteoglycan synthesis. The anti-catabolic (preventing breakdown) effect is a result of ***chondroitin*** inhibiting protease (protein-breaking-down enzyme) activity.

FOLLOW UP

This management regime should be trialled for a two-month period.

A review by your Doctor is important to assess this program and to make adjustments accordingly.

A/Prof Nigel Hope
ORTHOPAEDIC SURGEON
MB BS, PhD, FRACS, FAOrthA

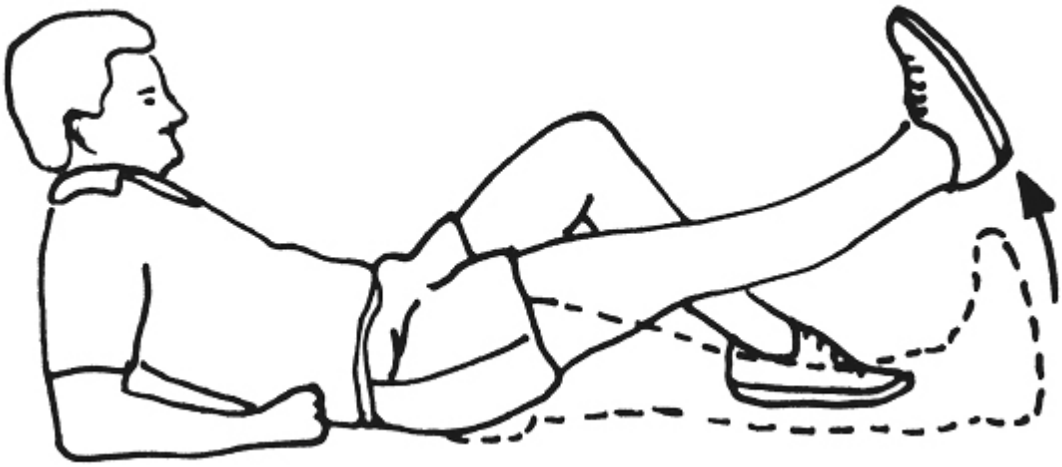
Knee and Hip Surgery
Sports Injuries

Provider No 057121MH

Patient Information Sheet

ANTERIOR KNEE SYNDROME

Straight Leg Raises



- Lie on your back with opposite knee bent to support your lower back.
- Tighten your knee muscles (quads) and point your toes upwards.
- Slowly, lift your leg straight up slightly lower than your bent knee. The leg should be straight throughout the lift.
- Lower and relax leg between each lift.

Perform: **8 sets of 10**
3 times a day

SYDNEY CBD
mi-Clinic
Level 2
44 Market St
Sydney NSW 2000

Correspondence to SAN CLINIC

SAN CLINIC
Suite 601
Sydney Adventist Hospital
185 Fox Valley Rd
Wahroonga NSW 2076

Ph 9473 8648
www.nigelhope.com.au