

## Preoperative ACL Surgery Rehabilitation Protocol

The timing of ACL surgery has a significant influence on the development of post-operative knee stiffness. The highest incidence of knee stiffness occurs if ACL surgery is performed when the knee is swollen, painful, and has a limited range of motion. The risk of developing a stiff knee after surgery can be significantly reduced if the surgery is delayed until the acute inflammatory phase has passed, the swelling has subsided, a normal or near normal range of motion (especially extension) has been obtained, and a normal gait pattern has been reestablished. *More important than a predetermined time before performing surgery is the condition of the knee at the time of surgery.*

### Immobilize the knee

Following the acute injury, you should use a knee immobilizer and crutches until you regain good muscle control of the leg. Extended use of the knee immobilizer should be limited to avoid quadriceps muscle weakness. You are encouraged to bear as much weight on the leg as is comfortable.

### Control Pain and Swelling

Apply cold packs to the knee for 30 minutes 4 to 6 times per day. You may also take a nonsteroidal anti-inflammatory drug (NSAID) such as Ibuprofen or Aleve as directed to help control pain and swelling. Do not take NSAIDs if you are allergic, have stomach ulcers, or kidney failure. The NSAIDs are continued for 7 – 10 days following the acute injury.

### Restore normal range of motion

You should attempt to achieve full range of motion as quickly as possible. Quadriceps isometrics exercises, straight leg raises, and range of motion exercises should be started immediately.

Full extension is obtained by doing the following exercises:

- 1) Passive knee extension.
  - Sit in a chair and place your heel on the edge of a stool or chair.
  - Relax the thigh muscles.
  - Let the knee sag under its own weight until maximum extension is achieved.



2) Heel props.

- Place the heel on a rolled towel making sure the heel is propped high enough to lift the thigh off the table.
- Allow the leg to relax into extension.
- 3 – 4 times a day for 10 – 15 minutes at a time.



3) Prone hangs.

- Lie face down on a table with the legs hanging off the edge of the table.
- Allow the legs to sag into full extension.
- 3 – 4 times a day for 10 – 15 minutes at a time.



Bending (flexion) is obtained by doing the following exercises:

1) Passive knee bend.

- Sit on the edge of a table and let the knee bend under the influence of gravity.

2) Wall slides.

- Lie on your back with the involved foot on the wall. Allow the foot to slide down the wall by bending the knee. Use the other leg to apply pressure downward.
- Used to increase knee bending.



3) Heel slides.

- Pull the heel toward the buttocks, flexing the knee. Hold for 5 seconds.
- In later stages of rehabilitation, do heel slides by grasping the leg with both hands and pull the heel toward the buttocks.
- Used to gain final degrees of flexion.



### **Develop muscle strength**

Once 100 degrees of flexion (bending) has been achieved, you may begin to work on muscular strength:

- 1) Use a stationary bicycle twice a day for 10 -20 minutes to help increase muscular strength, endurance, and maintain range of motion.
- 2) Swimming is another exercise that can be done during this phase to develop muscle strength and maintain range of motion.
- 3) Low impact exercise machines such as an elliptical cross-trainer, treadmill, and leg press machine can also be used.
- 4) Continue this program until you have achieved full range of motion of your knee and have good muscular control of the leg. You should be able to walk without a limp.

### **Mentally prepare**

- 1) Understand what to realistically expect of the surgery.
- 2) Make arrangements with a physical therapist for post-operative rehabilitation.
- 3) Make arrangements with your place of employment.
- 4) Make arrangements with family and/or friends to help during the post-operative rehabilitation.
- 5) Read and understand the rehabilitation phases after surgery.

### **Physical therapists**

- 1) Help patient achieve the above goals.
- 2) Instruct patient on a home exercise program.
- 3) Use modalities such as muscular e-stimulation to assist in achieving these goals.
- 4) Consider patella mobilization, soft tissue massage, and tactile desensitization as clinically indicated.
- 5) Help with the mental preparation of the patient.

Southeast Kansas Orthopedic Clinic  
Parsons, Kansas  
(620) 421-0881  
[www.sekortho.com](http://www.sekortho.com)