POSTERIOR CRUCIATE LIGAMENT RECONSTRUCTION
REHABILITATION PROTOCOL
DAVID R. MACK, M.D.

INTRODUCTION

Proper rehabilitation after **PCL** surgery is essential to success. The approach recommended by Dr. Mack follows four stages, and begins within 1-7 days of surgery:

- Phase 1: Immediate (weeks 1-2)
- Phase 2: Early (weeks 2-6)
- Phase 3: Intermediate (weeks 6-12)
- Phase 4: Late (weeks 12-36)

The protocol is unique and differs from ACL rehabilitation in that knee flexion beyond 90° places tension on the newly reconstructed PCL and is to be **AVOIDED** early on.

- Hamstrings: Do **NOT** perform any exercises requiring isolated hamstring contraction for 4 weeks, including hamstring curls, isometrics, or excessive stretching
- Flexion is achieved through passive wall slides to avoid active hamstring contraction

The protocol is modified if any of the following are present: meniscal repair, concomitant ligament repair, cartilage transfer or transplant, revision procedures, or marked physiologic laxity. Dr. Mack will advise if modifications are necessary.

Full return to sports is individualized. Requirements for return to sports include near normal strength, flexibility, and endurance. Isokinetic (Biodex) strength testing is recommended at 3, 6, and 9 months to assist in evaluation. Dr. Mack and your physical therapist will work together to determine when you are ready to return to sports without restrictions. In most cases, full activities are not permitted prior to 6 months.

A knee brace and crutches are used in all cases during the first 4 weeks. The brace is removed to perform range of motion exercises, but worn locked in full extension during weight bearing. Two crutches are used for the first 2 weeks. One crutch (on the side opposite your surgery), or weight bearing without crutches is allowed during weeks 2-4 if quadriceps control is adequate.

PCL REHABILITATION PROTOCOL
David R. Mack, M.D.
Phase 1: Immediate (Weeks 1-2)

GOALS

- Control pain, swelling and inflammation
- Achieve ROM 0-30° and emphasize full extension
- Achieve control of quadriceps muscle to allow full weight bearing

EXERCISES

ROM
- Passive 0-30°
- CPM is not used
- Patellar mobilization
- Ankle pumps, calf stretches
- Wall/Heel slides

Strength
- Quad sets
- Straight leg raises, calf raises
- Active short arc motion from 30-0°

Weight Bearing
- Two crutches at all times
- Weight bear as tolerated with brace locked in extension

Balance
- Single leg stance
- Side to side, front to back weight shift

Modalities
- Electrical stimulation
- Ice after exercise at 20 minute intervals (20 min on, 20 min off, repeat)

Brace
- Brace locked in extension at all times while walking
- Remove brace to exercise, sleep

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Phase 2: Early (Weeks 2-6)

GOALS

- Eliminate pain, swelling and inflammation
- Increase ROM 0-110° and maintain full extension
- Increase quadriceps strength to eliminate brace and crutches
- Improve patellar mobility
- Improve proprioception

EXERCISES

ROM

- Passive 0-110°
- Patellar mobilization
- Ankle pumps, calf stretches
- Wall/Heel slides
- Stationary bicycle when ROM is 0-110°

Strength

- Quad sets
- Straight leg raises in 4 planes, calf raises
- Leg presses and mini squats (0-30°)
- Active short arc motion from 70-0°
- Wall squats 0-30°
- Avoid aggressive hamstring stretches

Weight Bearing

- One crutch on side opposite of surgery until end of week 4
- Weight bear as tolerated with brace

Balance

- Single leg stance
- Side to side, front to back weight shift
- Balance board with both legs

Modalities

- Electrical stimulation
- Ice after exercise at 20 minute intervals (20 min on, 20 min off, repeat)

Brace

- Brace locked in extension at all times while walking until end of week 4
- Remove brace to exercise, sleep
- Fit for functional brace at Dr. Mack's office, as needed, at week 4-6

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Phase 3: Intermediate (Weeks 6-12)

GOALS

- Increase ROM 0-135°
- Increase quadriceps and hamstring strength, endurance, and control
- Improve patellar mobility
- Begin functional exercises

EXERCISES

ROM

- Passive 0-135°
- Patellar mobilization
- Ankle pumps, calf stretches
- Wall/Heel slides
- Stationary bicycle
- Continue hamstring stretches

Strength

- Quad sets
- Straight leg raises in 4 planes, calf raises
- Leg presses and mini squats (0-45°)
- Front and side lunges with body weight only
- Wall squats
- Begin isolated hamstring curls
- Begin treadmill
- Begin isokinetic work
- Multi-hip

Weight Bearing
- Full weight bearing
- No crutches

Balance
- Single leg stance
- Side to side, front to back weight shift
- Balance board with single leg

Modalities
- Electrical stimulation
- Ice after exercise at 20 minute intervals (20 min on, 20 min off, repeat)

Brace
- Discontinue post-operative I-ROM brace
- Use functional brace as needed

Isokinetic (Biodex®) Test
- At 3 months (Dr. Mack's office will schedule)

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Phase 4: Late (Weeks 12-36)

GOALS

- Maintain ROM 0-135°
- Maintain and increase quadriceps and hamstring strength, endurance, and control
- Begin sports-specific exercises

EXERCISES

ROM
- Continue all previous exercises

Strength
- Continue all previous exercises
- Increase plyometrics
- Begin jogging and running program
- Backward running

Balance

- Begin sports-specific drills
- Begin cutting, figure of 8 drills

Modalities

- Ice after exercise at 20 minute intervals (20 min on, 20 min off, repeat)

Isokinetic (Biodex®) Test

- At 6 months and 9 months (Dr. Mack's office will schedule)