



## ACL REHABILITATION PROTOCOL (hamstrings graft without meniscal repair)

### PHASE I (0-4 weeks):

#### Goals:

1. Protect graft and graft fixation
2. Minimize effects of immobilization
3. Control inflammation and swelling
4. Full active and passive extension/hyperextension range of motion. Caution: avoid hyperextension greater than 10 degrees
5. Educate patient on rehabilitation progression
6. Flexion as far as pain and stiffness allows
7. Restore normal gait on level surfaces

#### Weight bearing Status:

- week- partial weight bearing with two crutches to assist with balance
- 1-4 weeks- partial weight bearing progressing to full weight bearing with normal gait mechanics

#### Exercises:

- Isometric leg curls at mid-range. Progress to active against gravity as tolerated within the first 4 weeks.
- Heel slides
- Isometric quads extension at mid-range (60-90 degrees). Progress to SLR if no lag or pain.
- Gastroc/Soleus stretching
- Aquatic therapy (if applicable) for normalizing gait, weight bearing strengthening, for ROM and swelling.
- Stationary bike if flexion allows.

### PHASE II:

Begins approximately 4 weeks post-op and extends to approximately 12 weeks. Criteria for advancement to Phase II:

#### Goals:

1. Restore normal gait with stairclimbing
2. Maintain full extension, progress toward full flexion range of motion
3. Protect graft and graft fixation
4. Increase hip, quadriceps, hamstring, and calf strength
5. Increase proprioception
6. Minimal swelling/inflammation

#### Exercises:

- Continue with range of motion/flexibility exercises as appropriate for the patient

- Initiate CKC quad strengthening and progress as tolerated (wall sits, step-ups, mini-squats, Leg Press 90-30, lunges)
- Progressive hip, hamstring, calf strengthening (gradually add resistance to open chain hamstring exercises)
- Progressive open chain quads strengthening with bands/extension machine below 40 degrees from full extension
- Eccentric stretches for hamstring (arabesque//single leg dead lift, cable machine supine)/Gastroc/Soleus (heel drops on step)
- Stationary bike, Elliptical machine for conditioning (progress with time and resistance)
- Single leg balance/proprioception work (ball toss, balance beam, mini-tramp balance work)
- Begin running in the pool (waist deep) or on anti-gravity treadmill at 10-12 weeks

#### Phase III:

Begins at approximately 12 weeks and extends through approximately 18-20 weeks (4 ½- 5 months). (Criteria to advance to Phase III include no patellofemoral pain, minimum of 120 degrees of flexion, sufficient strength and proprioception to initiate running (unweighted or in pool), minimal swelling/inflammation).

#### Goals:

1. Full range of motion
2. Improve strength, endurance, and proprioception of the lower extremity to prepare for sport activities
3. Avoid overstressing the graft
4. Protect the patellofemoral joint
5. Normalise running mechanics
6. Strength approximately 70% of the uninvolved lower extremity per isokinetic evaluation

#### Exercises:

- Continue flexibility and ROM exercises as appropriate for patient
- Initiate high resistance open kinetic chain leg extension (90 to full extension), progress to eccentrics as tolerated.
- Isokinetics (with anti-shear device) - begin with mid-range speeds (120o/sec-240o/sec)
- Progress toward full weight bearing running at about 16 weeks
- Recommend isokinetic test with anti-shear device at 4 months post-op to guide continued strengthening
- Progressive hip, quad, hamstring, calf strengthening
- Cardiovascular/endurance training via elliptical, bike, swimming
- Advance proprioceptive activities

#### Phase IV:

Begins at approximately 4 ½ -5 months and extends through 6-7 months post-op. (Criteria for advancement to Phase IV no significant swelling/inflammation, full pain-free ROM, no evidence of patellofemoral joint irritation, strength over 70% of uninvolved lower extremity per isokinetic evaluation, sufficient strength and proprioception to initiate agility activities, normal running gait).

#### Goals:

1. Symmetric performance of basic and sport specific agility drills
2. Single hop and three hop tests 85% of uninvolved leg

3. Quadriceps and hamstring strength at least 85% of uninvolved lower extremity per isokinetic strength test

Exercises:

- Continue and progress flexibility and strengthening program based on individual needs and deficits
- Initiate plyometric program as appropriate for patient's athletic goals
- Agility progression including, but not limited to: Side steps, Crossovers, Figure 8 running, Shuttle running, One leg and two leg jumping, Cutting, Acceleration/deceleration/sprints, Agility ladder drills
- Continue progression of running distance based on patient needs
- Initiate sport-specific drills as appropriate for patient

Phase V:

Begins at 6-7 months post-op. (Criteria for advancement to Phase V no patellofemoral or soft tissue complaints, necessary joint ROM, strength, endurance, and proprioception to safely return to work or athletics, clearance to resume partial or full activity).

Goals:

1. Safe return to athletics/work
2. Maintenance of strength, endurance, proprioception
3. Patient education with regards to any possible limitations
4. Aim to get back to full sports 1 year after surgery

Exercises:

- Gradual return to sports participation
- Maintenance program for strength one a week and endurance

JULY 2020