General Principles:
This protocol was designed to provide the rehabilitation professional with a guideline of postoperative care. It should be stressed that this is only a protocol and should not be a substitute for clinical decision making regarding a patient’s progression. Actual progression should be individualized based upon your patient’s physical examination, progress, and presence of any complications.

NOTE: Protocol may need to be modified if multiple ligaments or meniscus are involved. Ligament testing should only be performed by the physician throughout the protocol.

PHASE I: (Immediate)

Week 1-2

Orthotics-
1. Knee brace locked in full extension at all times except for rehab exercises Wk 1
   Knee brace at all times, may unlock brace within ROM restrictions Wk 2
2. Use knee immobilizer at night until full extension is maintained
3. Elastic bandage as needed to control swelling

Weight Bearing-
1. Non weight bearing
2. Physicians will specify weight bearing restriction if Meniscus repair or other procedure accompanies reconstruction

Modalities-
1. Patients are encouraged to use polar care unit/ice for 20 minutes following exercises and as needed for pain control throughout protocol.
2. Other modalities at the discretion of the therapist based on clinical findings

ROM-
1. ROM restricted to 0-30*

Exercises-
1. Quad sets
2. Ankle pumps
3. Patella Mobilizations
4. Calf, Hamstring, and Knee extension stretching
   a. **IF hamstring graft**, Avoid excessive stretching of the hamstring the first 6 wks
5. Prone Hangs, no resistance
6. May start Heel slides / Wall slides from 0-30*
   a. Assist un-involved leg to improve ROM
7. Straight Leg Raises (May use brace if needed to maintain full extension)
   a. All planes
   b. NO resistance
8 Stationary bike or NU-Step
   a. Progress resistance as tolerated
9. Neuromuscular Re-Education as needed to improve quality of muscle contraction
PHASE II: (Intermediate)

Week 3 – 7

Orthotics-
1. Continue to wear knee brace at all times.
2. May progress into functional ACL brace when available at Wk 6-7

Weight Bearing-
1. Non Weight Bearing Wk 3-4. Progress weight bearing at tolerated at start of Wk 5.
2. May discontinue crutch use when gait is acceptable and good quad control

Modalities (PRN)-
1. Continue only as needed

ROM-
1. Wk 3-4: ROM 0-60*
   Wk 5-6: ROM 0-90*
   Wk 7: ROM As tolerated progressing to full ROM

Exercises-
1. Continue Phase I exercises
2. Standing balance / proprioception as weight bearing allows
3. May progress into hamstring strengthening (IF Hamstring graft, NO active hamstrings until Wk 5 and NO resisted hamstrings until Wk 6)
   a. Forward Chair scoots
   b. Biodex eccentric/concentric resistance
   c. Long arc hamstring curls, progress to weight machines as appropriate
4. Isometric Quads
   a. Positioned at 60˚ of knee flexion
5. After reaching 0 to 90˚ of Active knee flexion:
   a. Shuttle / Leg Press – Bilateral progressing to Unilateral
   b. Standing / Shuttle Calf Raises
ACL Reconstruction
with Meniscus Repair

PHASE III: (Strengthening)

Week 8 – 12

Orthotics-
1. Continue functional brace for high risk activity and exercise until notified by physician

Modalities (PRN)-
1. Continue only as needed

ROM-
1. Maintain full active and passive knee ROM

Exercises-
1. Continue Phase II exercises
2. Closed-chain strengthening activities with focus on VMO control, core stability, and avoidance of varus/valgus movement
   a. Step Ups, Lunges, Mini-Squats
3. Resisted Walking
   a. Forward/Backward initially, progress to Lateral
   b. Maintain proper knee alignment with good eccentric control
4. May initiate Open Chain Quad strengthening
   a. Short-arc progressing to Full-arc
   b. Progress resistance as tolerated
   c. Monitor for patella-femoral pain
5. Isokinetics
   a. Limit extension for -20° initially
   b. Start with 240 to 300 degrees per second
   c. Progress to 180 to 300 degrees per second as tolerated
6. Progress balance/proprioception to all 3 planes but limit range and speed as patient can control
7. Aquatics
   a. Closed chain strengthening and proprioception exercises
   b. Flutter kicks with straight leg, intervals of 30-60” of work
   c. Jogging at Wk 10 starting in deep water, progressing to chest/waist deep
ACL Reconstruction with Meniscus Repair

PHASE IV: (Advanced Strengthening)

3 MONTHS POST-OP
Orthotics-
1. May discontinue functional knee brace for daily activities.
2. Continue functional brace for high risk activity and exercise until notified by physician

Exercises-
1. Continue Phase III exercises
2. Progress to aggressive strengthening of the quad and hamstrings
3. Slideboard lateral gliding
4. Straight ahead jogging, level surfaces
   *Only with physician approval based on strength, stability, and case by case basis
5. Aquatic
   a. 2 leg bunny hops (Stationary progressing to fwd/bwd and side to side)
   b. Skipping and lateral shuffle
   c. Progress to plyometric / explosive jumps as appropriate
6. Testing to be completed prior to patient’s 3 month physician appointment
   a. Isokinetic Strength Test
      - Limit ROM for the test to -30° extension to full flexion
      (Goal: 70% Quads, 80% Hamstrings of involved leg)
   b. Y Balance Test- Anterior, Posterior Medial, Posterior Lateral
      (Goal: 75% of involved leg)
   *Please complete functional testing sheet and send results to physician
7. After 2 weeks of running program, progress to gentle lateral movements/agility work IF good quad control, no pain, and good stability
   a. Defensive slides, floor ladder
   b. Low level stationary jumps focused on proper landing mechanics

4 MONTHS POST-OP
1. Initiation of light sports activity
   a. Jumping, progressing to unilateral hops with good strength and control
   b. Shuttle bounding
   c. low-level change of direction
   d. Running program should include increased speed, rounded turns, backpedal
2. Testing to be completed at 4 months
   a. Isokinetic Strength Test
      - Limit ROM for the test to -30° extension to full flexion
      (Goal: 80% Quads, 90% Hamstrings of involved leg)
   b. Y Balance Test- Anterior, Posterior Medial, Posterior Lateral
      (Goal: 80% of involved leg)
5-9 MONTHS POST-OP

1. Progress patient to sprinting, agility drills, and functional sport skills
2. Testing to be completed prior to 5-9 month physician appointment
   a. Isokinetic Strength Test
      (Goal: 90% Quads, 90% Hamstrings of uninvolved leg)
   b. Y Balance Test- Anterior, Posterior Medial, Posterior Lateral
      (Goal: 90% of uninvolved leg)
   c. Hop Testing – Single hop for distance, 3 hop test, Crossover Hop test, 6m timed hop
      (Goal: 90% of uninvolved leg)

*Please complete functional testing sheet and send results to physician

3. Patients will have full release to play sports during this time frame, but only with physician
   approval based on strength, functional test results, and overall level of function
## Lower Extremity Functional Testing Sheet

**Patient Name:** _____________________________  
**DOB:** _____________  
**Diagnosis:** _________________________________  
**Physician:** _______________________________  
**Surgical Procedure:** _________________________  
**Clinician:** ________________________________  
**Surgery Date:** ______________________________  

**Date of Testing:** ________________  
**Pain:** _____/10  
**Perceived Recovery Rating:** _____/10

**Patient Comments:** ________________________________________________________________  
__________________________________________________________________________________  
__________________________________________________________________________________

### Y Balance Test (cm)

<table>
<thead>
<tr>
<th>Involved</th>
<th>Uninvolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anterior</td>
<td></td>
</tr>
<tr>
<td>Post-Medial</td>
<td></td>
</tr>
<tr>
<td>Post-Lateral</td>
<td></td>
</tr>
<tr>
<td>Sum</td>
<td></td>
</tr>
</tbody>
</table>

% of Uninvolved: __________

### Single Hop for Distance (cm)

<table>
<thead>
<tr>
<th>Involved</th>
<th>Uninvolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trial 1</td>
<td></td>
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<tr>
<td>Trial 2</td>
<td></td>
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<tr>
<td>Trial 3</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
</tr>
</tbody>
</table>

% of Uninvolved: __________

### 3 Hop Test for Distance (cm)

<table>
<thead>
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<td>Trial 1</td>
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<tr>
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<tr>
<td>Trial 3</td>
<td></td>
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<tr>
<td>Average</td>
<td></td>
</tr>
</tbody>
</table>

% of Uninvolved: __________

### Crossover Hop Test (cm)

<table>
<thead>
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<th>Involved</th>
<th>Uninvolved</th>
</tr>
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<tbody>
<tr>
<td>Trial 1</td>
<td></td>
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<tr>
<td>Trial 2</td>
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<td>Trial 3</td>
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</tr>
<tr>
<td>Average</td>
<td></td>
</tr>
</tbody>
</table>

% of Uninvolved: __________

### 6 Meter Timed Hop Test (Seconds)

<table>
<thead>
<tr>
<th>Involved</th>
<th>Uninvolved</th>
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<tbody>
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<td>Trial 1</td>
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<tr>
<td>Trial 3</td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
</tr>
</tbody>
</table>

% of Uninvolved: __________

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Please Fax the completed form to the physician at Hays Orthopedic Institute --- (785) 261 - 7548
Functional Tests

Single Hop for Distance
Patient stands with the front of their shoe behind the starting line. Ask the client to hop out as far as possible, landing with the knee bent to help decrease the risk for injury. The hop will be measured from the starting line to the back of the heel after completion of a trial. Each limb will be tested three times and distances scored for each limb.

3 Hop Test for Distance
Patient stands directly behind the starting line. Instruct them to perform three consecutive maximal-distance hops on one foot in a straight line direction. Total distance is measured from the starting line to the back of the heel after landing from the 3rd hop. Each limb will be tested three times and distances scored for each limb.

Crossover Hop Test for Distance
Patient will perform a single leg triple hop crossing over a 4 inch line/tape on the floor. Beginning with the foot immediately behind the starting line, the subject will perform three cross-over hops on a single leg. Instruct the patient to hop as far as possible for all three hops and to hold the landing foot stationary on the last hop. Do not allow the patient to pause and compose themselves between hops. Record the score as the distance from the starting line to the back of the heel on the final landing. Test three times on each limb and record.

6 Meter Timed Hop for Distance
Place a piece of tape or make 6 meters from the starting line. Patient stands behind the starting line. Instruct the patient to perform single-leg hops over the 6 meter distance. Encourage large, forceful hops. End the test when the back of the patient’s heel crosses the finish line. Measure time to the nearest 1/100th of a second. Each limb will be tested three times and times scored for each limb.
Y Balance Test
The goal of this test is to maintain single-leg balance while reaching as far as possible with the contralateral leg in three different directions. The three movement directions are anterior, posteromedial, and posterolateral. The six tests are to be performed in the following order: uninvolved anterior reach, involved anterior reach, uninvolved posteromedial, involved posteromedial, uninvolved posterolateral and involved posterolateral.

Starting position is single leg stance and ask the patient to reach with the opposite lower extremity while maintaining balance. Tell them to reach as far as possible without using the reach leg to provide support and return to the upright position after each reach while maintaining balance. The stance foot should not move from its original position.

Perform 3 trials and record the best score of the 3 trials for each position. For each leg, add the 3 direction scores together for a composite score.