Anterior Cruciate Ligament Reconstruction
Accelerated Rehabilitation Protocol

This rehabilitation protocol has been designed for patients with ACL reconstruction who anticipate returning to a high level of activity early postoperatively. The ACL Rehabilitation protocol for all grafts is the same with the following exceptions:

If a hamstring autograft was used:
   a. when performing heel slides, make sure that a towel/sheet is used to avoid actively contracting the hamstrings.
   b. do not perform isolated hamstring exercises until the 4th week post-op.

The following are **exclusionary criteria** for this protocol:

- Concomitant meniscal repair
- Concomitant reconstruction of another ligament
- Concomitant patellofemoral realignment procedure
- ACL revision reconstruction
- MRI evidence of severe bone bruising or articular cartilage damage noted

The protocol is divided into several phases according to postoperative weeks and each phase has anticipated goals for the individual patient to reach. The **overall goals** of the reconstruction and the rehabilitation are to:

- Control joint pain, swelling, hemarthrosis
- Regain normal knee range of motion
- Regain a normal gait pattern and neuromuscular stability for ambulation
- Regain normal lower extremity strength
- Regain normal proprioception, balance, and coordination for daily activities
- Achieve the level of function based on the orthopedic and patient goals

The physical therapy is to begin after the 2nd day post-op. It is extremely important for the supervised rehabilitation to be supplemented by a home fitness program where the patient performs the given exercises at home or at a gym facility.
Important post-op signs to monitor:

- Swelling of the knee or surrounding soft tissue
- Abnormal pain response, hypersensitive
- Abnormal gait pattern, with or without assistive device
- Limited range of motion
- Weakness in the lower extremity musculature (quadriceps, hamstring)
- Insufficient lower extremity flexibility

Return to activity requires both time and clinic evaluation. To safely and most efficiently return to normal or high level functional activity, the patient requires adequate strength, flexibility, and endurance. Isokinetic testing and functional evaluation are both methods of evaluating a patient’s readiness to return to activity.
Phase 1: Week 1-2
ACL Accelerated Protocol

**WEEK 1-2**

**EXERCISE**

**ROM**
- Passive, 0-110°
- Patella mobilizations
- Ankle pumps
- Gastoc-soleus stretches
- Wall slides
- Heel slides with towel

**STRENGTH**
- Quad sets x 10 minutes
- SLR (flex, abd, add)
- Multi-hip machine (flex, abd, add)
- Leg Press (90-20°)-bilateral
- Mini squats (0-45°)
- Multi-angle isometrics (90-60°)
- Calf Raises

**BALANCE TRAINING**
- Weight shifts (side/side, fwd/bkwd)
- Single leg balance
- Plyotoss

**WEIGHT BEARING**
- Wt bearing as tolerated with crutches
- Crutches until quad control is gained
- One crutch before FWB with no crutches

**BICYCLE**
- May begin when 110° flex is reached
- DO NOT use bike to increase flexion

**MODALITIES**
- Electrical stimulation as needed
- Ice 15-20 minutes with knee at 0° ext

**BRACE**
- Remove brace to perform ROM activities
- I-ROM when walking with crutches

**GOALS OF PHASE:**
- ROM 0-110°
- Adequate quad contraction
- Control pain, inflammation, and effusion
- PWB TO FWB as capable
Phase 2: Week 2-4
ACL Accelerated Protocol

<table>
<thead>
<tr>
<th>WEEK</th>
<th>EXERCISE</th>
<th>GOAL</th>
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<tbody>
<tr>
<td>2-4</td>
<td>ROM</td>
<td>0-125°</td>
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<tr>
<td></td>
<td>Passive, 0-125°</td>
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<tr>
<td></td>
<td>Patella mobilizations</td>
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<td></td>
<td>Ankle pumps</td>
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<tr>
<td></td>
<td>Light hamstring stretch at wk 4</td>
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<tr>
<td></td>
<td>Wall, heel slides to reach goal</td>
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</table>

STRENGTH
Quad sets with biofeedback
SLR in 4 planes (add ext at wk 4)
Heel raise/Toe raise
Leg Press
Mini squat (0-45°)
Front and Side Lunges
Multi-hip machine in 4 directions
Bicycle/recumbent bicycle
Wall squats

BALANCE TRAINING
Balance board/2 legged
Cup walking/hesitation walk
Single leg balance
Plyotoss

WEIGHT BEARING
As tolerated with quad control

MODALITIES
E-stim/biofeedback as needed
Ice 15-20 minutes

BRACE
Discontinue post-op brace week 4
Will measure for functional brace

GOALS OF PHASE:
- Maintain full passive knee extension
- Gradually increase knee flexion to 125°
- Diminish pain, inflammation, and effusion
- Muscular strengthening and endurance
- Restore proprioception
- Patellar mobility
## Phase 3: Week 4-12
### ACL Accelerated Protocol

<table>
<thead>
<tr>
<th>WEEK</th>
<th>EXERCISE</th>
<th>GOAL</th>
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<tbody>
<tr>
<td>4-8</td>
<td>ROM</td>
<td>Full ROM</td>
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</tbody>
</table>
|      | Self-ROM to gain Full ROM 0-135°  
And maintain 0° extension  
Gastoc/soleus stretching  
Hamstring stretching |      |
|      | STRENGTH |      |
|      | Progress isometric program  
SLR with ankle weight/tubing  
Leg Press-single leg eccentric  
Initiate isolated hamstring curls  
Multi-hip in 4 planes  
Lateral/Forward step-ups/downs  
Lateral Lunges  
Wall Squats  
Vertical Squats  
Heel raise/Toe raise  
Bicycle/recumbent bicycle  
Retro Treadmill  
Mini-squats/Wall squats  
Straight-leg dead lifts  
Stool crawl |      |
|      | BALANCE TRAINING |      |
|      | Steam boats in 4 planes  
Single leg stance with plyotoss  
Wobble board balance work-single leg  
½ Foam roller work |      |
|      | MODALITIES |      |
|      | Ice 15-20 minutes following activity |      |
|      | BRACE |      |
|      | Functional brace as needed |      |
| 8-10 | ROM      | Full ROM |
|      | Self-ROM as needed 0-135°  
Gastroc/Soleus/HS stretch |      |
|      | STRENGTH |      |
|      | Continue exercises from wk 4-6  
Progress into jogging program as ROM normalizes, pain and swelling are minimal. |      |

10-12

ROM
- Gastroc/Soleus/HS stretch

STRENGTH
- Continue exercises from wk 4-10
- Isokinetic test at 180 and 300°/sec
- Plyometric training drills
- Continue with stretching

MODALITIES
- Ice 15-20 minutes as needed

GOALS OF PHASE:
- Restore full knee ROM (0-135°)
- Increase lower extremity strength and endurance
- Restore functional capability and confidence
- Enhance proprioception, balance, and neuromuscular control
Phase 4: Week 12-16
ACL Acceleration Protocol

<table>
<thead>
<tr>
<th>WEEK</th>
<th>EXERCISE</th>
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<tbody>
<tr>
<td>12-16</td>
<td>ROM</td>
</tr>
<tr>
<td></td>
<td>Continue all stretching activities</td>
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<tr>
<td></td>
<td>STRENGTH</td>
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<tr>
<td></td>
<td>Continue all exercises from previous phases</td>
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<td>Progress plyometric drills</td>
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<td>Increase jogging/running program</td>
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<td>Swimming (kicking)</td>
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<td>Backward running</td>
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<td>FUNCTIONAL PROGRAM</td>
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<td>Sport specific drills</td>
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<td>CUTTING PROGRAM</td>
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<td>Lateral movement</td>
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<tr>
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<td>Carioca, figure 8’s</td>
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<td>MODALITIES</td>
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<td>Ice 15-20 minutes as needed</td>
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GOALS OF PHASE:
• Maintain muscular strength and endurance
• Enhance neuromuscular control
• Progress skill training
• Perform selected sport-specific activity
Phase 5: Week 16-36
ACL Accelerated Protocol

WEEK
16-36

EXERCISE
STRENGTH
Continue advanced strengthening

FUNCTIONAL PROGRAM
Progress running/swimming program
Progress plyometric program
Progress sport training program
Progress neuromuscular program

MODALITIES
Ice 15-20 minutes as needed

GOALS OF PHASE:
• Return to unrestricted sporting activity
• Achieve maximal strength and endurance
• Progress independent skill training
• Normalize neuromuscular control drills

At six and twelve months, a follow-up isokinetic test is suggested to guarantee maintenance of strength and endurance. Advanced weight training and sports specific drills are advised to maintain a higher level of competition.