

## **Anterior Cruciate Ligament (ACL) Reconstruction Hamstring Graft/PTG-Accelerated Rehabilitation Protocol**

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

1. When performing heel slides, make sure that a towel/sheet is used to avoid actively contracting the hamstrings.
2. Do not perform isolated hamstring exercises until the 4th week post-op.

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

- Concomitant meniscal repair
- Concomitant ligament reconstruction
- 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, and 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 on the second 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 exercised 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 activity.

**PHASE ONE: WEEK 1-2**  
**HS/PTG Accelerated Protocol**

<b>WEEK</b>	<b>EXERCISE</b>	<b>Goal</b>
1-2	<p>ROM</p> <p>Passive, 0-110°</p> <p>Patella mobs</p> <p>Ankle pumps</p> <p>Gastoc-soleus stretches</p> <p>Wall slides</p> <p>Heel slides with towel</p> <p>STRENGTH</p> <p>Quad sets x 10 minutes</p> <p>SLR (Flex, abd, add)</p> <p>Leg press (90-20°)-bilateral</p> <p>Mini squats (0-45°)</p> <p>Multi-angle isometrics (90-60°)</p> <p>Calf raises</p> <p>BALANCE TRAINING</p> <p>Weight shifts (side/side, fwd/bkwd)</p> <p>Single leg balance</p> <p>Plyotoss</p> <p>WEIGHT BEARING</p> <p>Weight bearing as tolerated with crutches</p> <p>Crutches until quad control is gained</p> <p>One crutch before FWB with no crutches</p> <p>BICYCLE</p> <p>May begin when 110° flex is reached</p> <p>DO NOT use bike to increase flexion</p> <p>MODALITIES</p> <p>Electrical stimulation as needed</p> <p>Ice 15-20 minutes with knee at 0° ext</p> <p>BRACE</p> <p>Remove brace to perform ROM activities</p> <p>I-ROM when walking with crutches</p>	0-110°

**GOALS OF PHASE ONE:**

- ROM 0-110°
- Adequate quad contraction
- Control pain, inflammation, and effusion
- PBW to FWB as capable



**PHASE THREE: WEEKS 4-12  
HS/PTG Accelerated Protocol**

<b>WEEK</b>	<b>EXERCISE</b>	<b>Goal</b>
4-8	<p>ROM</p> <p>Self-ROM to gain FROM And maintain 0° extension Gastroc/soleus stretching Hamstring stretching</p> <p>STRENGTH</p> <p>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/EFX Retro treadmill Mini-squats/Wall squats Straight-leg dead lifts Stool crawl</p> <p>BALANCE TRAINING</p> <p>Steam boats in 4 planes Single leg stance with Plyotoss Wobble board balance work—single leg 1/2 foam roller work</p> <p>MODALITIES</p> <p>Ice 15-20 minutes following activity</p> <p>BRACE</p> <p>Functional brace as needed</p>	Full ROM 0-135°
8-10	<p>ROM</p> <p>Self ROM as needed Gastroc/Soleus/HS stretch</p> <p>STRENGTH</p> <p>Continue exercises from weeks 4-6 Progress into jogging program as ROM normalizes, pain &amp; swelling are minimal Begin on mini-tramp, progress to treadmill as tolerated, then hard surface when tolerated Progress with proprioception training Isokinetic work (90-40°)(120-240°/sec)</p>	Full ROM 0-135°

Walking program  
 Bicycle for endurance  
 Plyometric leg press/shuttle work

10-12                      ROM  
                                   Gastroc/Soleus/HS stretch  
                                   STRENGTH  
                                   Continue exercises from weeks 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 THREE:**

- Restore full knee ROM (0-135°)
- Increase lower extremity strength and endurance
- Restore functional capability and confidence
- Enhance proprioception, balance, and neuromuscular control

<b>WEEK</b>	<b>EXERCISE</b>	<b>Goal</b>
12-16	ROM Continue all stretching activities STRENGTH Continue all exercises from previous phases Progress plyometric drills Increase jogging/running program Swimming (kicking) Backward running FUNCTIONAL PROGRAM Sport specific drills CUTTING PROGRAM Lateral movement Carioca, figure 8's MODALITIES Ice 15-20 minutes as needed	

**GOALS OF PHASE FOUR:**

- Maintain muscular strength and endurance
- Enhance neuromuscular control
- Progress skill training
- Perform selected sport-specific activity