

## SEAN ROBINSON, MD

### ACL PATELLAR TENDON AUTOGRAFT RECONSTRUCTION REHABILITATION PROTOCOL

	WEIGHT BEARING	BRACE	ROM	EXERCISES
<b>PHASE I</b> 0-4 weeks	Full in Brace	<b>0-1 week:</b> Locked in full extension for ambulation and sleeping <b>1-4 weeks:</b> Unlocked for ambulation, remove for sleeping**	As tolerated	Heel slides, quad/hamstring sets, patellar mobs, gastroc/soleus stretch SLR w/ brace in full extension until quad strength prevents extension lag Side-lying hip/core
<b>PHASE II</b> 4-12 weeks	Full	Discontinue at day 28 if patient has no extension lag	Full	Begin toe raises, closed chain quads, balance exercises, hamstring curls, stationary bike, step-ups, front and side planks; advance hip/core
<b>PHASE III</b> 12-16 weeks	Full	None	Full	Advance closed chain strengthening Progress proprioception activities Begin stairmaster, elliptical at 8 wks; Running straight ahead at 12 weeks
<b>PHASE IV</b> 16-24 weeks	Full	None	Full	<b>16 wks:</b> Begin jumping <b>20 wks:</b> Advance to sprinting, backward running, cutting/pivoting/changing direction, initiate plyometric program and sport-specific drills <b>22 wks:</b> Advance as tolerated FSA completed at 22 wks***
<b>PHASE V</b> > 6 months	Full	None	Full and pain-free	Gradual return to sports participation after completion of FSA Maintenance program based on FSA

\*Modified with concomitantly performed meniscus repair/transplantation or articular cartilage procedure

\*\*Brace may be removed for sleeping after first post-operative visit (day 7-10)

\*\*\*Completion of FSA (Functional Sports Assessment) not mandatory, but recommended at approx 22 wks post-op for competitive athletes returning to play after rehab

## ACL Reconstruction Protocol

### **Phase I: Acute**

#### Goals:

Alleviate acute pain and swelling  
Increase ROM 0-90° (emphasize 0° extension)  
Increase hamstring and quadriceps strength  
Promote comfortable ambulation WBAT with brace and crutches  
Patellar Mobilization  
Maintain cardiovascular conditioning

#### Plan: (0-2 weeks)

Patellar mobilization  
PROM positioning for knee extension  
ROM  
Heel/wall slides w/o brace  
½ revolution non-resisted bike for knee flexion - progress to full revolution when patient reaches 110°.  
Hamstring and quadriceps co-contraction  
Hamstring and calf stretching  
4-Quad (hip flexion, abduction, adduction, extension)  
Modalities for pain and edema control

#### Plan: (2-6 weeks)

Soft tissue/scar mobilization  
Prone/standing knee flexion  
Proprioceptive training/ balance — BAPS, trampoline  
Weight shifting in standing, 0-30° ROM mini squats  
EMS co-contraction at VMO and hamstrings'  
Theraband ankle exercises - progress to standing as WB dictates  
Begin Stairmaster at 4 weeks  
General conditioning  
Aquatic therapy (when incisions healed) No whip kick

### **Phase II (6-12 weeks)**

#### Goals:

Decrease swelling and prevent atrophy  
Increase ROM -125°  
Increase quadriceps and hamstring strength  
Increase hip strength  
Stimulate collagen healing  
Independent ambulation without crutches  
Continue general conditioning

#### Plan:

Continue phase I exercises  
Continue patellar mobilization and ROM activities  
Continue hamstring and calf stretching  
Standing ½ squat  
Joint and soft tissue mobilization as needed  
Isotonic hamstring NK table  
Leg press

Continue closed chain, balance and proprioceptive activities  
Continue EMS as needed for muscle re-ed and edema  
Step-ups (controlled - forward and side)  
\*McConnell tapping as necessary  
May begin swimming with modified kick (No "whip kick" or "egg beater kick")  
General conditioning

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### **Phase III (12-16 weeks)**

#### Goals:

Full ROM

Continue all goals from Phase II

#### Plan

Continue phase II exercises and progress as tolerated

Step-Up - side and down

Increase proprioceptive training (sport cord, body blade, plyoballs)

Treadmill as tolerated

Continue Stairmaster

½ wall sits as tolerated

### **Plan (16-20 weeks)**

Light jogging on trampoline

¼ to 1/2 squats (painfree)

Progress with closed chain activity

Isotonic terminal knee extension (30-0°)

### **Phase IV (20-36 weeks)**

#### Goals:

Development of strength, power and endurance

Begin to prepare for return **to** recreational activity

Begin sport specific training

#### Plan:

Continue Phase III exercise and conditioning activities

Continue strength training

Initiate running program

Initiate agility drills

Sport specific training and drills

Isokinetic evaluation