Anterior Cruciate Ligament
Rehabilitation Guidelines

General Guidelines
- ACL reconstruction performed with meniscal repair or transplant follows the ACL protocol with avoidance of open kinetic chain hamstring work for 6 weeks. Time frames for use of brace and/or crutches may be extended.
- ACL reconstruction with microfracture or osteochondral grafting (OATS) are non-weight bearing for up to 6 weeks.
- Supervised physical therapy takes place for 3-6 months.

General Progression of Activities of Daily Living
- Bathing/showering after suture removal
- Driving: 1 week for automatic cars, left leg surgery
  4 weeks for standard cars or right leg surgery
- Use of crutches for ambulation 1-2 weeks following surgery
- Weight-bearing as tolerated immediately post-operative

Pre-operative

Goals
- Restore full range of motion (ROM) and optimize strength
- Eliminate swelling allowing knee to equilibrate
- Ensure complete understanding of basic principles of accelerated rehabilitation
  - Full terminal knee extension
  - Early weight bearing and crutch use
  - Closed and open chain strengthening
  - KT-1000 – last session before surgery

Physical Therapy Attendance
- Pre-Operative: 1-2 visits/week
- PHASE I (0-4 weeks): 1-2 visits / week
- PHASE II (4-8 weeks): 2-3 visits / week
- PHASE III (2-6 months): 1-2 visits / week
- PHASE IV, V (6 months+): Discharge after appropriate functional progression

Rehabilitation Progression
The following is a general guideline for progression of rehabilitation following ACL reconstruction. Progression through each phase should take into account patient issues (healing, function) and physician advisement. Please consult the physician if there is any uncertainty concerning advancement to the next phase of rehabilitation.
**PHASE I (0-4 weeks)**

**Goals**
- Protect graft fixation
- Minimize the effects of immobilization
- Control inflammation
- Full extension ROM
- Educate patient on proper rehabilitation progression

**Weight Bearing Status**
As tolerated with crutches for week 1 then wean as tolerated. Discontinue crutches when able to do a single leg raise (SLR). Exception exists with chondral injury addressed with microfracture / osteochondral autograft (OATS) where patient is non-weight bearing for 4-6 weeks.

**CPM**
If utilized, begin at 0-30 degrees advancing 5-10 degrees per day until 120 degrees achieved

**Therapeutic Exercises**
- Heel slides
- Quad sets, hamstring sets (Consider NMES for poor quad set)
- Patellar mobilization
- Non-weight bearing gastroc/soleus, hamstring stretches
- SLR, all planes, with brace in full extension until quadriceps strength is sufficient to prevent extension lag
- Quadriceps isometrics at 60 and 90 degrees

**PHASE II (4-8 weeks)**

**Criteria to advance to PHASE II (4-8 wks)**
- Good quad set, SLR without extensor lag
- Approximately 90 degrees of flexion
- Full extension
- No signs of active inflammation

**Goals**
- Initiate closed chain exercises
- Restore normal gait
- Protect graft fixation

**Therapeutic Exercises**
- Wall slides 0-45 degrees, progressing to mini-squats
- 4 way hip
- Stationary bike (begin with high seat, low resistance to promote ROM, progress to single leg)
- Closed chain terminal extension with resistive tubing or weight machine
- Toe raises
- Balance exercises (e.g., single leg balance, KAT)
- Hamstring curls
- Aquatic therapy (if available) with emphasis on normalization of gait
- Continue hamstring stretches, progress to weight bearing gastroc/soleus stretches
PHASE III (2-4 months)

Goals
- Full range of motion
- Improve strength, endurance and proprioception of the lower extremity to prepare for functional activity
- Avoid overstressing the graft
- Protect the patellofemoral joint

Therapeutic Exercises
- Continue and progress previous flexibility and strengthening activities
- Stairmaster (begin with short steps, avoid hyperextension), elliptical trainer, Nordic Trac
- Knee extensions 90-45 degrees, progress to eccentrics
- Advance closed kinetic chain activities (e.g., leg press, one-leg mini squats 0-45 degrees of flexion, step-ups begin at 2” progress to 8”, etc.)
- Progress proprioception activities (e.g., slide board, use of ball racquet with balance activities, etc.)
- Progress aquatic program to include pool running, swimming (no breast stroke)

PHASE IV (4 months+)

Criteria to Advance to PHASE IV
- Full pain free ROM
- No evidence of patellofemoral joint irritation
- Strength and proprioception approximately 80% of uninvolved
- Physician clearance to initiate advanced closed chain kinetic chain exercises and functional progression with return to full activity

Goals
- Progress strength, power, proprioception to prepare for return to functional activity
  - Patient education with regards to any possible limitation

Therapeutic Exercises
- Functional progression including, but not limited to:
  - Walk/jog progression
  - Forward/backward running, ½, ¾, full speed
  - Cutting, crossover, carioca, etc.
  - Plyometric activities
  - Sport-specific drills
- Safe, gradual return to sports after successful completion of functional progression
- Maintenance program for strength, endurance

Bracing
- Functional brace may be recommended by the physician for use during sports for first year after surgery

Return to Sport
Ultimate return to sport or work is dependent upon clearance by physician, graft choice, associated injuries, and rehabilitation condition as achieved by patient. If there are any questions regarding ultimate return please contact physician.