

*Dr. Aaron Coats ACL Reconstruction protocol*

*Philosophy*

**The following is an outline of the post-operative rehabilitation program for anterior cruciate ligament reconstructions utilized at the American Health Network Bone and Spine. This protocol is to be utilized as a guideline. There will always be individual patient differences regarding progression and/or tolerance of specific activities.**

**Progression through the protocol will depend on successful accomplishments of set milestones as assessed by the physician and the physical therapist's confidence level. The therapist and patient must constantly be aware of changes in condition, including but not limited to signs and symptoms of patellofemoral irritation, extension lag, instability, effusion, joint pain, and gait deviation. The patient's home exercise program is of utmost importance and should be monitored and emphasized.**

**Remember, rehabilitation is nothing more than creating the optimal environment for the natural process of healing to occur.**

**If you have any questions regarding this protocol, or the rehabilitation status of ACL reconstruction patients, please contact Dr. Aaron Coats at American Health Network Bone and Spine.**

### **WEEKS 1-2 (PROTECTIVE PHASE)**

**GOALS:** REDUCE SWELLING, WORK TOWARD FULL EXTENSION, TOLERATE WT BEARING, ACHIEVE QUAD ACTIVATION, REDUCE POSTOPERATIVE PAIN. NOTE: IT IS ESSENTIAL TO CUE FOR GOOD CORE STABILIZATION AND POSTURAL CONTROL WITH EXERCISES THROUGHOUT ALL REHABILITATION STAGES. POOR CORE CONTROL MAY INDICATE AN EXERCISE IS TOO ADVANCED FOR THE PATIENT.

### **PRECAUTIONS:**

1. With hamstring graft brace will remain locked for 4 weeks with weight bearing activities, and then unlocked for four weeks.
2. With BPTB autograft brace can be unlocked when patient demonstrates good quad control and normalized gait pattern. Brace can be discharged at 4 weeks after 4 week post-op visit with physician.
3. If ACL repair with meniscus repair then ROM is limited to 0-90 degrees for three weeks. Brace will be locked for a period of time that will be determined by the physician, as this is dependent on the type of repair that was performed

### **EXERCISES:** Patellar mobilizations

Isometrics (quadricep, gluteals, hamstrings)

Ankle pumps-> heel raises

SLR's

Heelslides (seated or supine)

Long sit hamstring stretch

Prone TKE

weight shifting/ Box steps

gait activities (if appropriate quad control)

Prone and/or sidelying leg circles with emphasis on trunk stabilization and hip disassociation

Trunk stabilization exercises

### **MODALITIES:** E-stim, cryo, biofeedback

### **WEEKS 2-4 (CONTROLLED STABILIZATION)**

**GOALS:** MOVING TO CLOSED CHAIN/ PROPRIOCEPTIVE ACTIVITIES. ACHIEVE FULL KNEE EXTENSION, NORMALIZE GAIT FREE OF ASSISTIVE DEVICES, FLEXION  $\geq 90$  DEGREES, NO ACTIVE EXTENSOR LAG.

**EXERCISES:** Stationary cycling (when ROM allows)

In line heel to toe walking (forward and back, cueing as needed to achieve normal gait pattern)

Cone stepping

Single leg standing

Wobble or BAPS board, half styrofoam roller

Mini squats

Band resisted: Standing knee extension (closed chain, band behind knee)

Side stepping (straight, diagonals, circles)

Heel slides (or rolling stool pulls)

Seated hip internal and external rotation

4 way stabilization kicks (if good quad control present)

Leg press to 45 degrees

Leg curls

\*\* Continue to progress previous exercises, however explain to the patient if an exercise is being D/C'ed or replaced by a higher level activity so they have a clear understanding of their core home program. Activities to maintain general conditioning (upper body strengthening, cardiovascular endurance) may be initiated once post operative pain and side effects are under control. These activities may include UBE, upper body weight lifting without stressing leg, pool therapy (after 4 weeks). HOWEVER, the patient should not shift their primary focus from rehabilitating the operative limb

**MODALITIES:** Continue e-stim until good quadriceps control achieved, cryotherapy, cross friction massage over adhered scars (when healed)

### **WEEKS 4-6 (FUNCTIONAL STRENGTHENING)**

**GOALS:** FULL FLEXION, COMFORTABLE RECIPROCAL STAIR CLIMBING, NORMAL SPEED WITH GAIT. NOTE- IF FULL EXTENSION HAS NOT BEEN ACHIEVED BY 4 WEEKS, NOTIFY PHYSICIAN.

**EXERCISES:** Progressive squats

Progressive step ups (forward, side, back, 4-8" step)

1/4 Lunges

Single leg balance with opposite leg reaches

Fast form walking (start in clinic with therapist and progress gradually)

Retrograde treadmill walking

Stationary bike, ski machine, &/or stepper

Sport cord resisted walking

Swiss ball or foam roller dynamic stabilization exercises

Continue to progress previous exercises as indicated

**MODALITIES:** Cryotherapy, others PRN

### **WEEKS 6-8**

Continue as previous, progressing volume and intensity as tolerated.  
Monitor and address signs of patellofemoral pain.

**EXERCISES:** Begin two footed hopping or light jump roping.

- 5-point agility drills (star drills)
- Lateral hops over 6-8" mat or box
- Sliding board
- Hopping over line or ladder drills

### **WEEKS 8-10**

**EXERCISES:** PRE squats, lunges, step ups

- Long distance fast form walking 2-4 miles
- Circuit training drills for 20 minutes (15-20 stations, 45 seconds work/ 15 seconds rest)

### **WEEKS 10-12**

May begin walk/jog progression starting with 1 ½ mile walk with ½ mile jog straight forward.  
Progress increasing jog and decreasing walk distances by ½ mile as tolerated. When patient can jog 2 miles without pain or swelling, he/she may begin straight ahead running at ½ speed.

### **WEEKS 12-16**

**EXERCISES:** Begin low intensity vertical plyometrics

- Begin ¾ speed sprints if progressed as above on smooth surface
- Carioca drills (walking-> ½ speed-> ¾ speed)
- Figure 8 jogging progression
- Begin functional sport specific training in controlled environment with trainer or therapist
- KT-1000 test
- Functional testing to include:
  - Single leg vertical leap
  - Single leg 6 m timed hop
  - Single leg hop for distance
  - Single leg 6 m cross over hop
  - Single leg triple jump for distance
  - Sport specific testing

### **WEEKS 16-24**

Continue total body fitness, strengthening, and endurance training. Consider release to full activity upon MD and PT approval. Repeat KT-1000 and functional tests.