Anterior Cruciate Ligament Reconstruction Protocol

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Philosophy

The following is an outline of the post-operative rehabilitation program for anterior cruciate ligament reconstructions by Dr. Metzler. 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 the offices of Dr. Adam Metzler at OrthoCincy Orthopaedics and Sports Medicine.

(WEEKS 1-2) Protective Phase

Goals:

- Reduce swelling
- Work toward full extension
- Tolerate weight bearing
- Achieve quad activation
- Reduce post-operative 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.
- Patient must have full extension by 2 weeks
- Brace should be removed for sleep and when seated
- Patients must be doing HEP 7 days a week

Precautions:

- The brace will remain locked for 4 weeks with weight bearing activities and then unlocked for four weeks.
    - IF THE PATIENT HAS GOOD QUAD CONTROL, THERAPIST SHOULD UNLOCK THE BRACE WHEN WALKING BEFORE 4 WEEKS.
    - Please try and wean the patient off of crutches by 2 weeks.

- If ACL repair with large meniscus repair, then ROM is limited to **0-90** degrees for 4 weeks.
- Patient is advised to remove brace and perform ROM 3-5/day on own out of brace

Exercises:

- Patellar mobilizations
- Prone knee extension stretch
- Prone TKE
- Isometrics (quadriceps, gluteals, hamstrings)
- Ankle pumps>>heel raises
- SLR's
- Side-lying leg circles with emphasis on trunk stabilization and hip disassociation
- Trunk stabilization exercises
- Heel slides (seated or supine)
- Long seated hamstring stretch
- Gait activities (if appropriate quad control)

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 >= 90°
- 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
- Balance activities (BOSU. Air Ex, half foam roller)
- Mini squats
- Band resisted:
    - Standing terminal 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 curl

Continue to progress previous exercises, however, explain to the patient if an exercise is being discharged 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 weightlifting 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 quadricep control achieved, cryotherapy, cross friction massage over adhered scars (when healed)
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(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. The brace is shortened and unlocked at 4 weeks or earlier if good quad control.

Exercises:

- Progressive squats to 90°
- Progressive step ups (forward, side, back, 4-8” step)
- ¼ 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, and/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 previous exercises, progressing volume and intensity as tolerated
- Monitor and address signs of patellofemoral pain

Exercises:

- 5-point agility drills (star drills)
- QUADS, QUADS, QUADS
    - Leg press and squats to 90 degrees, increase weight as patient tolerates
    - Eccentric hamstring reach
    - Core work (planks, side planks)

    - Proprioception work
- Slide board
- Stationary bike, ski machine, and/or stepper

WEEKS 8-12
Exercises:

- Transition to supervised return to play strengthening program and/or gym workout (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 12-16
Exercises:

- Begin low intensity vertical plyometrics:
- Jump rope
- Double leg line hops forward/backward
- Double leg line hops side/side
- Alternating ball/box taps
- Double leg box drops
- Double Leg Agility ladder exercises

4 MONTHS POST-OP

- Begin walk/jog progression starting with 1½ 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
- May begin swimming (Freestyle only). No jumping into the pool.

Exercises:

- Begin functional sport specific training in controlled environment with strength trainer or therapist
    - Double leg box jumps
    - Single leg line hops forward/backward
    - Single leg line hops side/side
    - Single leg box drops
    - Single Leg Agility ladder exercises

- Functional testing to include
    - Single leg vertical hop
    - Single leg 6 m timed hop
    - Single leg hops for distance
    - Single leg 6 m cross over hop
    - Single leg triple jump for distance
    - Sport specific testing

5 MONTHS POST OP

- Begin ¾ speed sprints if progressed as above on smooth surface and advance to full sprints
- Continue total body fitness, strengthening, and endurance training.
- Consider release to full activity upon MD and PT approval.
- Repeat functional tests.

6 MONTHS POST OP

- Aggressive lateral movements (cutting/pivoting)

Return to play is generally 9-12 months minimum and must pass functional evaluation and strength testing criteria