**ACL Reconstruction**

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The intent of the protocol in this package is to educate you about your surgery and the challenging rehabilitation that will follow. The primary goal of rehabilitation is to protect the reconstruction while steadily progressing towards and ultimately achieving pre-injury level of activity. The first step towards achieving this goal is to read this package before you have surgery in order to prepare yourself for the rehabilitation process.



**ACL PRE-OP INSTRUCTIONS**

**PRE-OP**

As soon as you are aware of your surgery date you must schedule your first physical therapy appointment for 2 – 4 days after your surgery date. This is very important to ensure your physical therapy starts soon after surgery. You may need to participate in physical therapy 3 times a week initially, and decrease to 2 times a week.

**PAIN**

It is common to experience pain in your knee and shin after surgery. Ice, elevation, and ankle pumps will help decrease the pain.

**ELEVATION**

Keep your leg elevated with your foot above your heart a MINIMUM of 4 times a day for 20 minutes each time. You may place pillows under your calf and foot to elevate your leg. DO NOT place pillows under your knee as this will prevent your knee from straightening.

**ICE**

Ice your knee while it is being elevated. Feel free to ice your shin as well if you are having a lot of shin pain.

**BRACE**

You must wear the brace (immobilizer) at all times. You may loosen the brace and/or ace bandage if any discomfort or excessive pain is present. Remove the ace wrap /dressing only if instructed by your physician. You will need to wear your brace and walk with crutches until you are able to demonstrate good control of your leg. This is determined by your therapist and is usually approximately 10-14 days post-op.

**DRESSING**

DO NOT get the operated leg wet until your first post-op visit with your physician.

**WALKING**

Walk minimally, (for bathroom/meals) wearing the brace and using both crutches at all times.

**SCAR**

Do not massage the scar at any time. In the future, if you will be exposed to sunlight, keep the scar covered or use sunblock.

**RETURN TO WORK/SCHOOL**

Return to work or school will need to be discussed with your physician.

**REHABILITATION**

Your rehab initially is a collective effort of you, your therapist, and your physician. However, due to the current restrictions place by the managed health care system, duration of your formal physical therapy may be limited. This will be discussed when you begin physical therapy. It is our goal to progress you to a point where you are fully educated and are able to continue with your rehab independently. Your insurance company may determine the end of your physical therapy. **THE END OF FORMAL PHYSICAL THERAPY DOES NOT SIGNIFY THE END OF YOUR REHAB.** A written exercise instruction packet will be provided for you upon discharge from formal physical therapy. If you are interested, other self-pay options will be made available to you as well.

**ACL POST-OPERATIVE REHABILITATION**

The following is a protocol for postoperative patients following ACL reconstruction. The primary goal of this protocol is to protect the reconstruction while steadily progressing towards and ultimately achieving pre-injury level of activity. Please note this protocol is a guideline. Patients with additional surgery (i.e. collateral ligament repair, meniscal repair) will progress at different rates. Achieving the criteria of each phase should be emphasized more than the approximate duration. If a patient should develop an increase in pain or swelling or decrease in motion at any time, activity should be decreased until problems are resolved. Please contact our office if there are any questions in regards to this protocol.

**PHASE I: IMMEDIATELY POSTOPERATIVE**

The immediate postoperative phase focuses primarily on motion, swelling reduction, and rest. The patient is expected to come to their first post-op visit with full knee extension (knee is completely straight). It is especially important the patient rest and refrain from normal activities during this phase so the patient can focus on healing and the home exercise program. The patient must continue to walk with the crutches and immobilizer until the physician or therapist advises the patient to discontinue use of them.

DURATION: approximately 0 – 2 weeks

ACTIVITIES:

 PROM/AAROM/AROM for knee flexion/extension

 Heel props, prone hangs, towel extensions for extension

 Heel and wall slides for flexion, prone knee flexion

 Isometrics

 Quad sets (0 degrees knee flexion)

 Hip adduction (0 and 45 degrees knee flexion)

 Hamstring sets (45 degrees knee flexion)

 Straight leg raises

 All 4 planes

 With immobilizer until able to SLR without extensor lag

 Gait training

 WBAT with crutches and immobilizer until able to ambulate with quad control

 Pre-gait activities

 Proprioception

 Weight shifting with UE support

 B/L heel raises

 Standing hip flexion with WB quad set

 Patella mobilizations

 Modalities and rest to control pain and inflammation

CRITERIA TO PROGRESS TO PHASE II:

1. Progressive decrease in swelling
2. AROM: 0 – 100 degrees
3. Independent SR without an extensor lag
4. Progressing WB

**PHASE II: EARLY STRENGTHENING AND RETURNING TO ADLs**

The primary focuses of phase II are obtaining full knee motion and independent walking with a normal gait pattern. The patient should have full knee motion and feel comfortable walking forwards, sideways, and backwards at the end of this phase.

DURATION: approximately 2 – 4 weeks post-op

ACTIVITIES:

 AROM/AAROM/PROM to maintain full knee extension and progress flexion

 Functional strengthening

OKC exercises: SLR (all 4 planes, progressive resistance), prone ham curls (knee 2” off table, light theraband resistance), SAQ extensions at 90 – 30 degrees

CKC exercises: Wall sits (30 degree forward lean, squeezing ball), ¼ squats,

2” – 4” step-ups

 Stationary bike (no resistance)

 Gait training / Proprioception

 Treadmill: Retro-walking and forward walking

 Heel and toe walking

 Sidestepping

 “Cupwalking”: walking and sidestepping over 16 oz. plastic cups

 Standing hip and knee flexion

 Unilateral heel raises

 Modalities as needed to control pain and inflammation

CRITERIA TO PROGRESS TO PHASE III:

1. Continued progressive decrease in swelling
2. AROM equal B/L
3. Independent ambulation without gait deviation

**PHASE III: PROGRESSIVE STRENTHENING**

During phase III the patient should be focusing on progressive strengthening and improving balance. Emphasis should be on a gradual increase in resistance with strengthening activities during this phase.

DURATION: approximately 4 – 8 weeks post-op

ACTIVITIES:

 Progressive functional strengthening

 Multihip/cable column for hip strengthening

 Prone hamstring curls with progressive resistance

 Squats with minimal resistance (standing on theraband and/or light barbell)

 Lunges

 4” – 6” step-ups, step-downs

 Single leg press (<25% BW @ 4 – 6 weeks. <50% BW @ 6 – 8 weeks post-op)

 Stationary bike, treadmill

 Stairmaster (approximately 6 weeks post-op if no patellofemoral symptoms)

 Proprioception

 BAPS, Rocker board

 Unistands (floor and mini tramp)

 Maintain full ROM

 Modalities as needed to control pain and inflammation

CRITERIA TO PROGRESS TO PHASE IV:

1. Swelling <1 cm at knee joint line
2. Symmetrical prone ROM
3. Pain free 6” step down with good eccentric control

AT THIS POINT, SOME PATIENTS MAY HAVE USED UP THEIR ALLOWABLE BENEFITS FROM THEIR INSURANCE COMPANY. HOWEVER, THIS DOES NOT MEAN THE PATIENIT IS DONE WITH THEIR REHABILITATION. THE THERAPIST WILL WORK WITH THE PATIENT TO HELP SET UP A PROGESSIVE HOME EXERCISE PROGRAM IF IT IS NECESSARY. IT IS RECOMMENDED THE PATIENT JOIN A HEALTH CLUB/GYM AT THIS POINT TO MAXIMIZE REHAB POTENTIAL.

**PHASE IV: ADVANCED STRENGTHENING AND FUNCTIONAL ACTIVITIES**

Phase IV focuses on continued strengthening and beginning to return to higher level activities. It is imperative the patient continues to focus on strengthening at this point to ensure full return to activitiy with the appropriate amount of strength.

DURATION: approximately 8 – 12 weeks

ACTIVITIES:

 Advanced CKC strengthening:

 Leg press (unilateral and bilateral)

 Squats: bilateral with barbell, unilateral with theraband

 Lunges: backward, side and traveling lunges; lunges with plyoball overhead

 Bike, stairmaster with progressive increase in resistance

 Treadmill jogging: begin with intervals (walk – jog – walk)

 Proprioception:

 “Plus” outline on mini tramp and/or floor: side – side, front – back, diagonals

 Jumping (approximately 12 – 16 weeks post-op)

 Hopping (approximately 16 – 20 weeks post-op)

CRITERIA TO PROGRESS TO PHASE V (12 WEEK ASSESSMENT):

1. Pain free
2. Symmetrical ROM
3. No effusion
4. KT 1000 < 2 mm displacement at 20 lb. test
5. Single leg press 70% of noninvolved extremity with 1 rep max
6. Able to hop up and down on the involved extremity comfortably
7. Girth (7” above knee joint line) within 2 cm of non-involved extremity

**PHASE V: RETURNING TO FULL FUNCTION**

At approximately 12 weeks post-op the average person and recreational athlete should be at approximately 50% of normal function. However, it is very important the patient continue with a strengthening program a minimum of 3 times per week until 6 months post-op to ensure 100% recovery. The recreational athlete should also participate in some agility training for a safe return to sport. For the high-level athlete, the patient may begin the progressive running program if the above criteria have been met. Cross training with biking and pool activities is also helpful at this point. The high-level athlete should focus on progressive strengthening, running, plyometric and pre-sport activities for the following 3 months, achieving full return to sport at approximately 6 months post-op.

CRITERIA FOR RETURN TO SPORTS (APPROXIMATELY 6 MONTHS POST-OP):

1. Pain free
2. Symmetrical ROM
3. No effusion
4. KT 1000 less than 3 mm difference at manual maximal test
5. Single leg press equal bilateral with 1 rep max test
6. Jogging 2 miles pain free
7. Functional hop testing 85% of non-involved extremity
8. Girth (7” above knee joint line) equal bilateral