

ACL PROTOCOL

PHASE ONE

Weeks 1-2

The patient will be in a post-op IROM brace that is set at 0-90 degrees. The brace is to be worn at all times except when exercising, in bed, or in the CPM machine. The patient should ambulate with B axillary crutches and brace until a N gait is achieved.

Dressing will be intact – do not remove initially to decrease probability of infection. Once stitches have been removed, ok to remove elastic wrap.

Keys during phase one:

- Gain full knee extension so patient can ambulate with N gait.
- Neuro-muscular quad control – use biofeedback on VMO
- Control swelling: Swelling inhibits quad firing and limits ROM; as long as there is a flexed knee gait, the more the patient ambulates, the more swelling will increase; therefore, limit activities and ambulation early in rehab.
- Normal gait: patients will ambulate with flexed knee gait secondary to no quad control; have patient focus on quad contraction and full knee extension during stance phase of gait
- ROM: In surgery, full ROM is achieved after the graft is fixated to assure has been correctly placed; ROM should be progressed as tolerated.

EXERCISES

STRENGTH AND NM CONTROL

- Quad sets (10 X 10sec)– the more the better – at least 100/day
- SLR – 4 way
- DO NOT PERFORM SAQ OR LAQ TO FULL EXTENSION
- Multi-hip
- Calf Raises

ACL PROTOCOL

STRETCHING

- Hamstring stretch (not aggressive if Hamstring Graft) – hold 30 seconds
- Calf stretch with towel – hold 30 seconds
- Prop foot on pillow to encourage full extension
- Prone hangs to gain full extension

ROM

- Goal during this phase is 0-110° at least
- Manual patella mobs – especially superior/inferior
- Seated heel slides using towel
- Supine heel slides at wall if needed
- Prone hangs if needed to gain full extension
- Bicycle – do not perform until 110° of flexion is achieved – do NOT use bike to gain ROM. Perform daily and increase resistance as able to work quad.

BALANCE

- Weight shifting
- Single limb stance
- Single leg crouch (slight)

GAIT

- Cone walking – move to single crutch when ready and then d/c crutches when patient ambulates with N gait.

*Perform HEP 3X/Day

PHASE TWO WEEKS 2-4

By end of this phase, the patient should ambulate with normal gait, have good quad control, controlled swelling, and be able to ascend/descend stairs.

ACL PROTOCOL

EXERCISES

STRENGTH

- Quad sets are continued until swelling is gone and quad tone is good
- SLR (4 way) add ankle weights when ready
- Shuttle/Total gym – bilateral and unilateral- focus on weight distribution more on heel than toes to avoid overload on Patella tendon
- Multi-hip – increase intensity as able
- Closed chain terminal knee extension (TKE)
- Leg Press
- Step-ups – forward
- Step-overs
- Wall slides
- Mini-squats – focus on even distribution of weight
- Calf raises
- Hamstring curls (for all patients)

STRETCHING

- Continue with HS and calf stretching

ROM

- Goal is 0-125°
- Perform scar massage aggressively at portals
- Prone hangs (do not add weight to ankle) w/BF
- Heel slides – seated and/or supine
- Continue with cycling, increasing duration and intensity

BALANCE

- Single leg stance – even and uneven surface – focus on knee flexion
- Medicine Ball – toss
- Lateral cone walking with single leg balance between each cone

ACL PROTOCOL

GAIT

- Cone walking – forward and lateral

*Continue with HEP

PHASE THREE

Weeks 4-8

Goals for this phase are full quad control and good quad tone; patient should be able to perform N ADLs without difficulty.

Exercises will be advanced in intensity based on quad tone – a patient who continues to have poor quad tone must not be advanced to activities that require high quad strength such as squats and lunges

STRENGTH

- Continue with above exercises, increasing intensity as able
- Step-ups – forward and lateral; add dumbbells to increase I; focus on slow and controlled movement during the ascent and descent
- Squats – usually around week 5 – Smith press or standing
- Lunges – wk 5-6; forward and reverse; add dumbbells or med ball
- Hamstring curls (not until wk 7 for HS graft)
- Swiss ball and foam roll hamstring exercises – supine bridge with knee flexion, bridge with HS curl
- T-band hip flexion
- Single leg squats– focus on keeping hips level and avoiding dynamic knee valgus.
- Russian dead lifts – bilateral and unilateral
- Single leg wall squats
- Cycle – increase intensity; single leg cycle maintaining 80 RPM

ROM

- Goal is 0-140°
- Work to full ROM – continue with heel slides

ACL PROTOCOL

- BALANCE
- Medicine Ball – toss – even and uneven surface
- Squats on balance board/foam roll/pad
- Strength activities such as step-ups and lunges on pad

*Continue with HEP at least 3X/week

PHASE FOUR

Weeks 8-12

Exercises for strengthening should continue with focus on high intensity and low repetitions (6-10) for increased strength.

Hamstring and calf stretch should also continue.

Quad stretch should be implemented.

Initiate lateral movements and sports cord: lunges, forward, backward, or side-step with sports cord, lateral step-ups with sports cord, step over hurdles.

Jogging/Plyometrics :

Ten weeks is the earliest that jogging will be implemented. Based on quad tone, no swelling, and permission from Dr. Lintner, the patient can begin to jog at a slow to normal pace focusing on achieving normal stride length and frequency. The patient must be able to maintain level pelvis and have no dynamic knee valgus on a single leg squat before starting to jog/run. Initiate jogging for 2 minutes, walking for 1 until this is comfortable for the patient and then progress the time as able. Jogging should first be performed on a treadmill or track (only straight-away) and then progressed to harder surfaces such as grass and then asphalt or concrete. It is normal for the patient to have increased swelling as well as some soreness but this should not persist beyond one day or the patient did too much.

Jump rope and line jumps can be initiated when the patient is cleared to jog.

This can be done for time or repetitions and should be done bilaterally and eventually, around 12 weeks progressed to unilateral.

Jogging and plyometrics should be performed with **brace on**.

ACL PROTOCOL

PHASE FIVE

Weeks 12-16

Progress with stretching and strengthening program (2-3X/week)

Progress jogging speed and distance

Progress plyos: Sportsmetric or similar jumping program can be implemented

Bilateral and unilateral plyos on shuttle

Plyos can include squat jumps, tuck jumps, box jumps, depth jumps, 180 jumps, cone jumps, broad jumps, scissor hops

Leg circuit: squats, lunges, scissor jumps on step, squat jumps

Power skipping

Bounding in place and for distance

Quick feet on step – forward and side-to-side – use sports cord

Progress lateral movements – shuffles with sports cord; slide board

Ladder drills

Swimming – all styles

Focus should be on quality, NOT quantity

Landing from jumps is critical – knees should flex to 30° and should be aligned over second toe. Controlling valgus will initially be a challenge and unilateral hops should not be performed until this is achieved.

PHASE SIX

Weeks 16-32

Initiate sprints and cutting drills.

Progression: Straight line, figure 8, circles, 45° turns, 90° cuts

Carioca (Karaoke)

Sports specific drills

Single leg hop test (two consecutive hops on one leg): goal is >80% of uninjured leg

Expected Return after 6+ months.