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Physical Therapy Protocol: ACL Reconstruction

Philosophy:

The ACL rehabilitation program emphasizes early restoration of symmetric knee ROM. The goal is to maintain stability, achieve full motion, safely rehabilitate the knee, and avoid harvest site complications. There is to be no testing of reconstructed ligaments (Lachman, Anterior/Posterior Drawer, Varus/Valgus Stress) prior to 12 weeks. Avoid isotonic resisted hamstring exercises for 8 weeks with hamstring autograft. Open chain knee extension exercises, and isokinetic strengthening are **not** performed until after 8 weeks. As the strength and agility returns, the patient may go back to doing what they enjoy. Even when the formal rehabilitation program comes to an end, keeping the knee strong and stable takes a lifelong commitment. It may take a year or more of steady exercise to regain the full use of the knee.

Phase I, Post-Op 0-2 Weeks

OSMS appointments:

MD visit at 2 weeks with post-op film

Physical therapy will begin as directed by your physician and as indicated on your physical therapy order

Rehabilitation Goals:

Toe-touch weight-bearing in locked brace at 0

Post-op brace is worn for 3 weeks locked in extension while ambulating and sleeping. This will protect the graft during early incorporation as well as the donor site.

Reduce swelling using cryocuff.

Precautions:

Weight-bearing in locked brace with crutches

Range-of-Motion Exercises:

AAROM 100 to 0 degrees

Suggested Therapeutic Exercises:

Toe touch weight-bear as tolerated with two crutches

Heel slides, seated flexion stretch, passive prone flexion stretch, prone hangs, patellar mobilizations, ankle pumps, quad sets, flexion SLR with ankle weight

Passive extension stretch-foot on bolster

Clam shells, abd SLR with ankle weight, Standing terminal knee extensions into band

Standing knee flexion

NMES to quadriceps with quad set/SLR



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Cardiovascular Exercises:

Bike

Progression Criteria:

Patient may progress to phase II after 2 weeks if they have pain well-controlled, 5°-90° of knee ROM with minimal joint swelling and quadriceps muscle control

Phase II, (after Phase I criteria met, usually 2-4 weeks)

OSMS appointments:

Physical therapy appointments remain every 5-7 days

Rehabilitation Goals:

Achieve symmetric motion

Minimize joint swelling with standing activities

Precautions:

Discontinue crutches if no quad lag with SLR, no signs of quad inhibition, and can squat hold for 60 sec with blue band

Range-of-Motion Exercises:

Full

Suggested Therapeutic Exercises:

LE/hip flexibility, passive flexion stretch, hydrants

Flexion and abd SLR with ankle weights, NMES to quadriceps, mini squats, squat holds

Heel raises, bridge holds, Hamstring curl on ball with bridge-double leg

Front/side plank, supermans

Cardiovascular Exercises:

Bike

Progression Criteria:

Patient may progress to phase II after 4 weeks if they have pain well-controlled

Progressive quadriceps control and no increase in joint swelling with standing activities

Phase III, (after Phase II criteria met, usually 4-6 weeks)

OSMS appointments:

MD appointment at 6 weeks

Physical therapy appointments every 5-7 days, and progresses to home program

Rehabilitation Goals:

Balance and stability



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Suggested Therapeutic Exercises:

Incline walking, LE/hip flexibility, multi-directional Wobble board, single leg balance
8" step-ups, standing hydrant holds
Single leg bridge, hamstring curl on ball with bridge-single leg
Front plank with hydrant, side plank with clamshell, alternating supermans

Cardiovascular Exercises:

Bike, Stairmaster, Aquacisor (gait training), or retrograde treadmill

Progression Criteria:

Patient should be pain-free with minimal swelling
Step-ups with good form for 10-20 repetitions, standing hydrant exercise with good form for
30 seconds with blue band

Phase IV, (after phase III criteria met, usually 6-11 weeks)

Rehabilitation Goals:

Non-impact strengthening: 6-day/week program

Suggested Therapeutic Exercises:

Incline walking, LE/hip flexibility, multi-directional Wobble board, single leg balance
8" step-ups, standing hydrant holds
Single leg bridge, hamstring curl on ball with bridge-single leg
Front plank with hydrant, side plank with clamshell, alternating supermans

Cardiovascular Exercises:

Bike, Stairmaster, Aquacisor (gait training), or retrograde treadmill

Progression Criteria:

Performs 6 day/week program for at least 4 weeks with documented weight-resistance
progression. Keep flow sheets for MD visits.

Phase V, (after phase IV criteria met, usually 12-16 weeks)

Rehabilitation Goals:

Non-impact strengthening: 6-day/week program (3 days cardio, 3 days strength)

Suggested Therapeutic Exercises:

Cardio Day:

Warm-up
Bike
LE/Hip flexibility



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Standing hydrant holds

Flex and abd SLR with ankle weights

Band stepping/Walks

Cardio training goal, 60 min (elliptical, Stairmaster, bike)

Strength Day:

Warm-up

Bike

LE/Hip flexibility

Standing hydrant holds

Flex and sbd SLR with ankle weights

Band walks

Strength training (continue with previous, add:)

Single leg squats

Step downs in hip dominant position, goal 8"

12-18" power step-ups

Single leg Romanian deadlifts (RDLs)

Progression Criteria:

Performs 6day/week program for at least 4 weeks with documented weight-resistance progression. Analysis is required for validation of proper form in 8" step down. Keep flow sheets for MD visits.

Phase VI, (phase V criteria met, usually 16-20 weeks)

Rehabilitation Goals:

Return to jumping: 6-day/week program (3 days cardio, 3 days strength/plyometrics)

Suggested Therapeutic Exercises:

Cardio Day:

Warm-up

Bike

LE/Hip flexibility

Standing hydrant holds

Flex and abd SLR with ankle weights

Band walks

Cardio training goal, 60 min (elliptical, Stairmaster, bike)

Strength Day:

Warm-up

Bike



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LE/Hip flexibility

Standing hydrant holds

Flex and sbd SLR with ankle weights

Strength training (continue with previous, add upper body and adv weight as tol)

Plyometric & Jump Rope progression:

Stationary jump

Jump up

Jump over a line-forward and lateral

Drop jump (progress to 18")

Jump rope exercises

Hurdle jump-forward and lateral

Progression Criteria:

Performs 6day/week program for at least 4 weeks. Analysis is required for validation of proper form in 18" drop jump.

Phase VII, (phase VI criteria met, usually 20-24 weeks)

Rehabilitation Goals:

Return to running: 6-day/week program (3 days cardio, 3 days strength/plyometrics)

Suggested Therapeutic Exercises:

Cardio Day:

Warm-up

Bike

LE/Hip flexibility

Standing hydrant holds

Flex and abd SLR with ankle weights

Band walks

Cardio training goal, 60 min (elliptical, Stairmaster, bike)

Running drills:

Jogging 40 yards at 60-70% max

Slowly progressing to continuous running

Strength Day:

Warm-up

Bike

LE/Hip flexibility

Standing hydrant holds

Flex and sbd SLR with ankle weights



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Strength training (continue with previous, add upper body and adv weight as tol)

Plyometric & Jump Rope progression:

Jump rope exercises

Drop jump (progress to 18")

10 yard broad jump

Single leg hop for distance

Single leg hurdle hop-forward and lateral

Bounds-Forward, lateral and diagonal

Stationary single leg hop

Single leg hop up & down

Progression Criteria:

Performs 6day/week program for at least 4 weeks. Analysis is required for validation of proper form of triple hop and readiness to progress onto cutting and changing direction activity.

Phase VIII, (phase VII criteria met, usually 24+ weeks)

Rehabilitation Goals:

Cutting and change of direction: 6-day/week program (3 days cardio, 3 days strength/plyometrics)

Suggested Therapeutic Exercises:

Cardio Day:

Warm-up

Bike

LE/Hip flexibility

Standing hydrant holds

Flex and abd SLR with ankle weights

Band walks

Cardio training goal, 60 min (elliptical, Stairmaster, bike, jogging)

Running drills:

Lateral shuffle

Deceleration

90° cuts

Strength Day:

Warm-up

Bike

LE/Hip flexibility



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Standing hydrant holds

Flex and sbd SLR with ankle weights

Strength training (continue with previous, add upper body and adv weight as tol)

Plyometric progression:

Jump rope exercises

Drop jump (progress to 18")

10 yard broad jump

Bounds-Forward, lateral and diagonal

Single leg hop for distance, triple hop

Single leg hurdle hop-forward and lateral

Stationary single leg hop

Single leg hop up & down

Progression Criteria:

Performs 6day/week program for at least 4 weeks. Analysis is required for validation of proper form of:

18" step down

18" box jump

Triple hop

Lateral shuffle

Deceleration and cutting

References:

- Adams D, Logerstedt D, Hunter-Giordano A, Axe MJ, Snyder-Mackler L. Current Concepts for Anterior Cruciate Ligament Reconstruction: A Criterion-Based Rehabilitation Progression. *J Orthop Sports Phys Ther.* 2012;42(7):601-614.
- Manal TJ, Hoffman SA, Sturgill L. *Current Concepts of Orthopaedic Physical Therapy, 3rd Edition: The Knee: Physical Therapy Patient Management Utilizing Current Evidence.* 2011; Independent Study Course 21.2.11.
- Myer GD, Paterno MV, Ford KR, Quatman CE, Hewett TE. Rehabilitation After Anterior Cruciate Ligament Reconstruction: Criteria-Based Progression through the Return-to-Sport Phase. *J Orthop Sports Phys Ther.* 2006;36(3):385-402.
- Noyes Knee Institute. ACL Repair Protocol.
- UW-Madison ACL Repair Protocol.
- Wilk KE, Macrina LC, Cain EL, Dugas JR, Andrews JR. Recent Advances in the Rehabilitation of Anterior Cruciate Ligament Injuries. *J Orthop Sports Phys Ther.* 2012;42(3):153-170.