



BAY AREA ORTHOPEDIC
SURGERY & SPORTS MEDICINE

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Anterior Cruciate Ligament Reconstruction

Rehabilitation Protocol

GENERAL CONSIDERATIONS

* This handout serves as a general outline for you as a patient to better understand guidelines and time frames associated with your ACL reconstruction rehabilitation.

* Please keep in mind that these time frames are to be considered approximate and may not be met by all patients at the specific timeline. This is due to differences in healing, tolerance, and subtle differences with the surgical procedure.

* The rehabilitation process is an ongoing process of re-evaluation, with specific changes in your program based on your progression. You will undergo a functional evaluation at 14 weeks, 6 months, and 1 year post-operatively to objectively assess what specific strengths and weaknesses exist.

* It is important to recognize that your symptoms do not necessarily reflect your ability to perform activities. Due to healing, incorporation of your ACL graft, weakness of the leg and compensation, it is best to check with your physical therapist or your physician before engaging in any activity you are unsure of.

* You will be scheduled for a pre-operative visit with a physical therapist.

The purpose of this visit is to:

- introduce you to the rehabilitation department who will be helping guide you through your post-operative rehabilitation
- instruct you on specific pre-operative and post-operative home exercises
- familiarize you with the rehabilitation protocol and specific goals

* Post-operatively, you will follow-up with the physical therapy center at your 1 and 2 week appointment. This corresponds with your physician appointment.

After that, the following is the schedule for physical therapy appointments:

- 2-10 weeks post-op—3 times per week
- 10-12 weeks post-op—2 times per week
- 12+ weeks post-op—1 time per week or as needed
- 14 week functional test
- 24 week functional test

ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

REHABILITATION PROTOCOL

PROGRESSION OF PROGRAM

Pre-operative visit:

-Evaluation and home program review of pre-op and post-op exercises, brace and crutch use, and post-op guidelines and precautions. Questions on the surgical procedure, post-op expectations and time frames will also be addressed.

Post-operatively:

Week 1-2:

- Re-evaluation and review of home program.
- Begin increasing weight bearing and wean from crutches as able to demonstrate good mechanics. Brace is to be used until 1-2 weeks post-op depending on ability to control the leg with ambulation.
- ROM should be 0-75 degrees and the patient should be able to straight leg raise.
- Early emphasis on achieving full extension with active VMO recruitment.
- Soft tissue treatments to patella, patella tendon, incisions, and posterior musculature to improve range of motion and decrease fibrosis.

Weeks 2-4:

- Range of motion exercises (i.e. wall/heel slides, passive stretching), pain control, gait training, and continue with soft tissue treatments.
- ROM should be 0-110 degrees by 2 weeks post-op.
- Incorporate functional, closed-chain focused exercises (i.e. mini-squats, modified lunges, leg press, calf exercises.). Emphasis on VMO control, core stability, and avoidance of varus / valgus moment with exercises.

- If hamstring graft, no active hamstring exercises until 2 weeks and no open-chain resisted hamstring curls until 4 weeks post-op.
- If patella tendon graft, no resisted leg extension machine at any point.
- Stationary bike, pool workouts and upper body conditioning.
- Balance and proprioception exercises.

Weeks 4-6:

- Continue with ROM focus if patient cannot actively move knee from 0-115. Soft tissue and scar mobilization for ROM and patella / tendon mobility.
- Increase intensity of functional exercises (i.e. add weight or resistance with exercises, incorporate stretch cord exercises, increase intensity with aerobic machines).
- Single-leg/unilateral workouts (i.e. on weight machines, squats, side and forward step-downs, increase depth of balance exercises).
- Aggressive core stabilization program (i.e. physioball, foam roller exercises).
- Extensive balance/proprioception program focusing on weak positions.
- Add Stairmaster, VersaClimber, Elliptical Trainer.

Weeks 6-8: *M.D. follow-up at 6 or 8 weeks. Will reduce number of visits to 1x/week.

- Introduce lateral training as able to demonstrate good mechanics and adequate strength..
- Carefully monitor exercises for signs of diminished eccentric control, weakness, or poor ability to stabilize against varus / valgus moment with loading exercises.

Weeks 8-10:

- Continued supervised care 1 x / week with particular emphasis on strengthening in the lower ranges of motion (i.e. from 30-80 degrees of knee flexion).

Weeks 10-12:

-1 visit at 10 weeks and one visit at 12 weeks to review home program, increase intensity as indicated and monitor for guarding or compensation.

Weeks 12-14:

-Patients can begin jogging at 14 weeks assuming they have adequate quadriceps control and no complications. Their first few sessions of running should be monitored by the clinician for proper mechanics.

-At 14 weeks, the patient will have a follow-up appointment with the M.D. and a functional test. The functional test consists of:

-Ground clock / timed

-Unilateral squat / timed / to 70 degrees of flexion

-Lateral shuffle / leaping

-Carioca

-Two-legged leap / distance

-Jogging

-Unilateral balance

-Other functional test specific to patient's activity

ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

WITH SIMPLE MENISCUS REPAIR

General Considerations:

-It is important to recognize that all times are approximate and that progression should be based on careful monitoring of the patient's functional status.

-PROM as tolerated. Early emphasis on achieving full extension.

-Patients will be in a knee immobilizer for weight bearing for 3 weeks post-op.

-Touchdown weight bearing for 3-5 days, progressing to full weight bearing in

extension until 3 weeks post-op. Important to watch for lower leg rotation or heel whip with ambulation.

-Closed chain activities initiate at 2-3 weeks post-op and beginning between 20°-70° OR in full extension to avoid stress onto the repair. Avoid submaximal CKC exercises for 6 weeks.

-Active hamstring exercises can be initiated at 4 weeks and resistive at 6 weeks.

-No lateral exercises for 6-8 weeks and no pivoting or ballistic activities for at least 4 months post-op.

-No resisted leg extension machines (isotonic or isokinetic) at any point in the rehab process.

-Patients are given a functional assessment test at 14 weeks, 6 months and 1 year post-op.

Week 1:

-Straight leg raise exercises (lying, seated, and standing), quadricep/adduction/gluteal sets, gait training.

-Well-leg stationary cycling, abdominal exercises and upper body conditioning.

-Soft tissue treatments to posterior musculature, retropatella and surgical incisions.

Weeks 2 - 4:

-Continue with pain control, gait training, and soft tissue treatments.

-Incorporate closed-chain exercises (i.e. mini-squats, modified lunges, short step-ups) between 20°-70° OR in full extension. Avoiding going into the last 15°-20° of extension avoids stress onto the repair.

-Aerobic exercises consisting of UBE, well-leg stationary cycling, and upper body weight training.

Weeks 4 - 6:

-Discontinue use of knee immobilizer if able to demonstrate adequate quad control.

-Leg weight machines (i.e. light leg press, calf raises, abduction/adduction).

- Add hamstring curls without resistance*.
- Stationary cycling initially for ROM, increasing as tolerated.
- Patients should have full extension and 110 degrees of flexion by the end of this period.

Weeks 6 - 12:

- Increase the intensity of functional exercises (i.e. add a stretch cord for resistance, add weight)
- Introduce resistive hamstring curls*.
- Add lateral training exercises (i.e. lateral stepping, lateral step-ups, step-overs).

Weeks 12-16:

- Progress to running as able to demonstrate good mechanics and appropriate strength.
- Begin to incorporate light sport-specific training.
- Patients should be weaned into a home program with emphasis on their particular activity.

Weeks 16-24:

- Incorporate bilateral jumping and bounding exercises, making sure to watch for compensatory patterns and any signs of increased load onto the knee with take-offs or landings.

*--cautiously introduce hamstring resisted exercises, watching for signs of joint line/meniscus irritation

ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION

WITH COMPLEX MENISCUS REPAIR

General Considerations:

-It is important to recognize that all times are approximate and that progression should be based on careful monitoring of the patient's functional status.

-PROM as tolerated. Early emphasis is on achieving full extension.

- Patients will be in a knee immobilizer for 4 weeks post-op.
- Nonweightbearing for 3-4 weeks.
- Closed chain activities initiate at 3-5 weeks post-op and beginning between 20°-70° OR in full extension to avoid stress onto the repair. Avoid submaximal CKC exercises for 8 weeks.
- Active hamstring exercises can be initiated at 6 weeks and resistive at 8 weeks.
- No lateral exercises for 10 weeks and no pivoting or ballistic activities for at least 4 months postop.
- No resisted leg extension machines (isotonic or isokinetic) at any point in the rehab process.
- Patients are given a Cybex / functional assessment test at 14 weeks, 6 months and 1 year postop.

Week 1:

- Straight leg raise exercises (lying, seated, and standing), quadricep/adduction/gluteal sets, gait training.
- Well-leg stationary cycling, abdominal exercises and upper body conditioning.
- Soft tissue treatments to posterior musculature, retropatella and surgical incisions.

Weeks 2 - 4:

- Continue with pain control, gait training, and soft tissue treatments.
- Aerobic exercises consisting of UBE, well-leg stationary cycling, and upper body weight training.

Weeks 4 - 6:

- Discontinue use of knee immobilizer if able to demonstrate adequate quad control.
- Incorporate closed-chain exercises (i.e. mini-squats, modified lunges, short step-ups) between 20°-70° OR in full extension. Avoiding going into the last 15°-20° of extension avoids stress onto the repair.
- Add hamstring curls without resistance*.

-Patients should have full extension and 110 degrees of flexion by the end of this period.

Weeks 6 - 8:

-Leg weight machines (i.e. light leg press, calf raises, abduction/adduction).

-Stationary cycling initially for ROM, increasing as tolerated.

-Increase the intensity of functional exercises (i.e. add a stretch cord for resistance, add weight, increasing resistance of aerobic machines).

Weeks 8 - 12:

-Introduce resistive hamstring curls*.

-Add lateral training exercises (i.e. lateral stepping, lateral step-ups, step overs).

Weeks 12-16:

-Progress to running as able to demonstrate good mechanics and appropriate strength.

-Begin to incorporate sport-specific training (i.e. volleyball bumping, light soccer kicks and ball skills on contralateral side).

-Patients should be weaned into a home program with emphasis on their particular activity.

Weeks 16-24:

-Incorporate bilateral jumping and bounding exercises, making sure to watch for compensatory patterns and any signs of increased load onto the knee with take-offs or landings.

*--cautiously introduce hamstring resisted exercises, watching for signs of joint line/meniscus irritation.