



**ACL REHABILITATION PROTOCOL**  
**For Dr. Bernard M. Seger**

***SPORTS MEDICINE***

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**PREOPERATIVE**

- 1) Range of motion and instability testing.
- 2) Full discussion regarding risks and indications for ACL reconstruction (including meniscal/cartilage repair).
- 3) Emphasize the need for full extension post-op.
- 4) Physical therapy is necessary to achieve improvement in range of motion and crutch training ability, thigh girth measurement.

**POSTOPERATIVE SURGERY CENTER**

- 1) Compression dressing, ice to the knee
- 2) Initiate CPM – (0 to 90 degrees)
- 3) Start quad sets/ankle pumps
- 4) Reiterate need for full extension
- 5) Crutch training, partial weightbearing with crutches discharge to home

**POSTOPERATIVE DAYS #1 TO 4**

- 1) Ice and elevate knee.
- 2) CPM 2 hours in the morning, 2 hours in the afternoon, and all evening if tolerated, 0 to 90 degrees increasing as patient tolerates.
- 3) Quad sets, ankle pumps 3-5 times per day for approximately 10 minutes.
- 4) Standing with crutches to obtain leg control (hip flexors with abductors and adductors) (hamstring curls)
- 5) Patient to adapt to operative leg being dependent.
- 6) Improved mobility, partial weightbearing with crutches utilizing good crutch technique.

**POSTOPERATIVE DAYS #4 TO 14**

- 1) Achieve and maintain full extension.
- 2) Continue CPM, improve motion to full.
- 3) Continue quad sets, ankle pumps 3-5 times per day.
- 4) Initiate slow stationary bicycling (not greater than 30 revolutions per minute).
- 5) Start physical therapy at this time.
- 6) Unlock brace when achieve good leg control.

#### POSTOPERATIVE DAYS #14 TO 28 (the first month)

- 1) Maintain full extension, continue to strengthen quads.
- 2) Continue to use CPM machine, graduating at the end of the month.
- 3) Gradually wean off of crutches after 14<sup>th</sup> day.
- 4) Work with physical therapy for core exercises and hip strengthening.
- 5) PT – Strengthen quads, hamstrings, gastrocs
- 6) PT – Modalities as indicated.
- 7) PT – No open chain exercises.
- 8) Progress to postoperative brace #2.

#### POSTOPERATIVE SECOND MONTH

- 1) Maintain full extension through gait.
- 2) Develop normal gait motion.
- 3) Continue daily bicycling, 20 minutes 2 times a day at no greater than 40 revolutions per minute, initiate resistance gradually on the stationary bike.
- 4) Continue physical therapy.

#### POSTOPERATIVE THIRD MONTH

- 1) Patient should have maintained full extension through gait with normal gait motion, daily bicycling program 20-30 minutes 2 times a day at no greater than 50 RPMs, continue to initiate resistance gradually on the stationary bike.
- 2) Continue physical therapy.

#### POSTOPERATIVE GOALS AT THREE MONTHS

- 1) To improve quadriceps tone (return of VMO definition)

#### EXERCISE PROGRAM #1

- 1) Quadriceps – straight leg raising (10 sets of 30 repetitions each) and quad setting (10 sets of 30 repetitions each)
- 2) Hip muscle groups, may progress by adding weights above the knee, hip abductors, flexors, adductors, extensors (10 repetitions, 4 sets daily), isometric variations can be substituted
- 3) Hamstring curls, may add weights around the ankle (10 repetitions 4 times daily)
- 4) Calf raises (10 repetitions, 3 sets), fast and slow sets
- 5) Swimming – flutter kick only gently and no whip kick
- 6) May begin outdoor biking program, avoid hills.
- 7) Walking on level ground, building up pace gradually
- 8) Squats – patient should be doing squatting exercises, half squats (never past 90 degrees) and slowly raise to starting position, build up to 100 repetitions per day

#### POSTOPERATIVE 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> MONTHS GOALS

- 1) Full range of motion.
- 2) Normal gait pattern.
- 3) Progressively increase functional strengthening system.

#### EXERCISE

- 1) Continue with exercise program from weeks 8-12.
- 2) Weight room activities.
- 3) Leg press – press body weight as many times as possible on non-surgical side (to fatigue), follow same sequence on surgical side.
- 4) Squat rack – half squats, not past 70 degrees at one-half body weight, 10 repetitions, progress to full body weight as tolerated.

- 5) Continue biking and/or swimming on a daily basis. No whip kicks.
- 6) Agility workouts, balancing on a teeter-totter board (baps board), figure of eights, backward jog, half speed jog on level surface only, initially alternate 100 yards walking/jogging over one mile, build up to one mile by 16 weeks postoperatively.

#### POSTOPERATIVE 5<sup>TH</sup> AND 6<sup>TH</sup> MONTH GOALS

- 1) Improve quadriceps strength/function.
- 2) Improve endurance.
- 3) Improve coordination/proprioception.

#### EXERCISES:

- 1) Jogging – (level surface, 15 minutes at 8-10 minutes/per mile pace, 5 minutes per week, performed daily)
- 2) Biking – the set resistance should continue to increase, perform daily at 20-30 minutes twice a day at 50 RPMs with increasing resistance
- 3) Step ups – face the step, put the foot of operative knee on step and step up on the step, repeat with gradual build up in repetitions until doing 100 step ups per day at the fifth and sixth month, try to lower from the step twice as long as it takes to raise up on the step.
- 4) Agility drills, figure of eights – daily, 5 minutes half speed, tighten circle size down, shuttle runs daily – 5 minutes half speed, repeat 10-12 repetitions
- 5) Zig zag running, angle across a distance of 10-15 yards and then angle back across field to another boundary 10-15 yards apart, continue for 100 yards, tighten up strengthen and endurance per minutes.
- 6) Preparing for return to sports
  - a. Basketball – shooting baskets only
  - b. Recreational tennis – no sharp pivoting

#### POSTOPERATIVE FULL REHABILITATION

- 1) Cleared by surgeon for return to competitive or pivot sports at six months
- 2) Quadriceps/thigh circumference should be within 1 cm of non-operative (normal side)
- 3) Quads of steel
- 4) Weekly strengthening program, full speed jog/run 20-30 minutes at a 6-7 minute per mile or best pace, stationary bike increasing resistance 20-40 minutes
- 5) Agility drills, figure of eights, shuttle runs, turns, baps board
- 6) Continue quad sets, straight leg raising (300 repetitions per day)
- 7) Running up hills and upstairs can be utilized to help build muscle mass and strength, limitation running downhill and downstairs which can irritate the patellar tendon

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