

KNEE MANIPULATION WITH OR WITHOUT LYSIS OF ADHESIONS

Physical Therapy, Strength and Conditioning

PHASE I: EARLY MOTION (WEEKS 0 TO 2)

Week 0-1

- Weight bearing as tolerated with crutches/walker. Wean from crutches/walker as tolerated.

Goals

- Daily formal physical therapy sessions during week 1
- Reduce inflammation
- Normalize patella mobility with manual mobilizations
- Full extension both passive and active
- Good quadriceps activation
- No extension lag
- 120° of knee flexion, progressing to full as tolerated

Exercise Progression

- Gait training
- Wean off crutches
- Extension—heel props for full extension as needed
- Flexion—off table or wall slides
- Quadriceps setting using NMES as needed
- Multi-plane straight leg raises
- Bilateral calf raises

Cardiovascular Exercise

- Stationary biking

Recommended Loading

- Short but frequent bouts of ROM and quadriceps activation 3+x/day

Week 1-2

Goals

- 3x weekly formal physical therapy sessions
- Reduce inflammation
- Full knee extension/hyperextension
- No extension lag
- 120°+ of knee flexion, progress as tolerated

Exercise progression

- Continue with 0-1 week program
- Extension—continue with heel props or add prone hangs (as needed)
- Flexion—wall or heel slides
- Ball bridge and/or isometric hamstring activation

Cardiovascular Exercise

- Stationary biking
- Short walks using a crutch as needed

Recommended Loading

- Short but frequent bouts of ROM and quadriceps activation 3x/day

PHASE II: PROGRESSIVE STRETCHING AND EARLY STRENGTHENING (WEEKS 2 TO 6)**Week 2-4****Goals**

- Progress off crutches
- Full knee extension/hyperextension
- Knee flexion to progress to full as tolerated
- Normalize gait mechanics
- Normalize patellofemoral joint and scar mobility

Exercise Progression

- Extension—heel props and prone hangs as needed
- Flexion—continue with end range heel slides
- Bilateral squat progression—focus on proper alignment
- Multi-plane open and closed kinetic chain hip strengthening
- Step-up progression—focus on proper alignment
- Hamstring activation with bridge on floor, ball or box
- Progress to unilateral heel raise off the floor then off a step
- Proprioception drills

Cardiovascular Exercise

- Stationary biking
- Treadmill/outdoor walking with focus on proper gait mechanics

Recommended Loading

- ROM: 2-3x/day
- Strength: 1x/day open chain; 3x/week closed chain
- Cardiovascular: 20 minutes/day with low intensity

Week 4-6**Goals**

- Reduce inflammation
- Full ROM
- Normal gait

Exercise Progression

- Controlled movement series—warm-up
- Leg press, hamstrings curls
- Single leg RDL's

Cardiovascular Exercise

- Increase intensity/duration
- Stationary biking
- Treadmill/outdoor walking with focus on proper gait mechanics
- Arc trainer or elliptical

Recommended Loading

- ROM: 2x/day
- Strength: 3x/week on closed chain loading
- Cardiovascular: 20-30 minutes/day with low to moderate intensity

PHASE III: ADVANCED STRENGTHENING AND ENDURANCE TRAINING (WEEKS 6 TO 8)**Goals**

- Control inflammation with increasing loads
- Full knee flexion and extension with terminal stretch
- Progressive strengthening
- Increase muscular endurance

Movement Prep

- Foam roller
- Controlled movement series

Exercise Progression

- Weighted squat progression
- Single leg squat/lunge progression (dips, retro, walk and split), focus on eccentric control and alignment.
- Monster walks

Core Program

- Front plank—full, may advance to alternating leg lift
- Bridge—marching or single leg
- Side plank—full
- Dead bug progression
- Quadruped alternating arm-leg

Cardiovascular Exercise

- Stationary biking
- Treadmill/outdoor walking with focus on proper gait mechanics
- Arc trainer or elliptical

Sports Specific Activity Progression

- Outdoor biking—week 6
- Shallow water pool running—week 6
- Swimming free style—week 6
- Higher intensity interval work with CV program—week 6-8
- Non-reactive and non contact on field/court progression

Recommended Loading

- ROM: 1-2x/day
- Strength: 3x/week on closed chain loading
- Cardiovascular: 20-45 minutes 5x/week with moderate intensity and intervals.