



Orthopedic Surgery, Sports Medicine & Arthroscopy Specialists

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REHABILITATION PROTOCOL- Meniscus repair 2 (radial, root, complex tears)

The rehabilitation guidelines are presented in a criterion based progression program. General time frames are given for reference to the average, but individual patients will progress at different rates depending on their age, associated injuries, pre-injury health status, rehab compliance, tissue quality and injury severity. Specific time frames, restrictions, and precautions may also be given to protect healing tissues and the surgical repair/reconstruction. It should not be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam findings, individual progress, and/or the presence of post-operative complications. The therapist should consult the referring physician with any questions or concerns.

Special attention must be given to impairments that caused the initial problem. For example, if the patient is s/p partial medial meniscectomy and they have a varus alignment, post-operative rehabilitation should include correcting muscle imbalances or postures that create medial compartment stress.

INDIVIDUAL CONSIDERATIONS: S/p

PHASE 1- Surgery to 6 weeks

REHAB GOALS	<ol style="list-style-type: none"> 1. Protection of the post-surgical repair 2. Full passive knee extension and flexion 3. Restore leg control – no lag with straight-leg-raise 4. Safe crutch walking 5. Eliminate effusion/swelling
PRECAUTIONS	<ol style="list-style-type: none"> 1. Crutches and non-weight bearing with brace locked in extension. Brace flexion limited to 90 degrees for medial and 70 degrees for lateral for 3 weeks, then progress. 2. Brace on for sleep for 2 weeks, afterwards can remove for sleep and bathing. 3. Cryocuff 3-5 times per day for 20 minutes and ice after every therapy session 4. No hamstring strengthening for 6 weeks
RANGE OF MOTION EXERCISES	<ul style="list-style-type: none"> ○ Heel props, prone hangs for passive knee extension ○ Patellar mobilization- superior/inferior and medial/lateral ○ Passive knee flexion, active/active assist knee extension (limit to 90 to 30 deg for anterior horn repairs for first 3 weeks) ○ Hamstring & calf stretches
SUGGESTED	<ul style="list-style-type: none"> ○ Quad sets

THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> ○ SLRs in 4 planes as tolerated, begin with flexion only, when no extensor lag progress to 4 plane. ○ Calf pumps, ankle strengthening exercises ○ Gait training with crutches ○ NMES as tolerated
CARDIOVASCULAR EXERCISE	Upper body circuit training or UBE.
PROGRESSION CRITERIA	<ul style="list-style-type: none"> ○ Straight leg raise without extension lag ○ No effusion ○ Knee flexion to 120 degrees ○ Good patellar mobility

PHASE 2- 7-9 weeks

REHAB GOALS	<ol style="list-style-type: none"> 1. Protection of the post-surgical repair 2. Restore/maintain knee range of motion – full knee extension and Knee flexion 3. Regain quadriceps control 4. Minimize pain and swelling 5. Begin closed chain exercises, progress balance & proprioceptive training
PRECAUTIONS	<ol style="list-style-type: none"> 1. Crutches and non-weight bearing until week 6. Progress to full weight bearing after 6 weeks, wean crutches 2. Continue brace for ambulation, can unlock. Can discontinue brace at 8 weeks if ambulating normally without assistive device without an extensor lag. 3. Cryocuff 3-5 times per day for 20 minutes and ice after every therapy session
RANGE OF MOTION EXERCISES	<ul style="list-style-type: none"> ○ Continue phase 1 exercises ○ Calf, IT band, hip flexor and hamstring stretches ○ Patellar mobilizations
SUGGESTED THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> ○ Continue phase 1 exercises ○ Quad sets, multiangle quad isometrics ○ SLRs in all planes, add ankle weights <10% of body wt when tolerating ○ Knee extension- active/active assist (limit 90-30 for anterior horn) ○ Calf pumps, ankle strengthening exercises ○ hip/gluteal strengthening, short arc quad/VMO strengthening ○ Begin balance/neuromuscular training, double leg. Avoid twisting or pivoting on knee ○ Closed chain strengthening- knee flexion 0-40 degrees

CARDIOVASCULAR EXERCISE	Upper body circuit training (seated), core strengthening or UBE Stationary bike- high seat, no/low resistance
PROGRESSION CRITERIA	<ul style="list-style-type: none"> ○ Straight leg raise in all 4 planes without extension lag ○ No effusion ○ Full knee range of motion ○ Normal patellar mobility

PHASE 3- 10-15 weeks postop

REHAB GOALS	<ul style="list-style-type: none"> ○ Maintain full ROM ○ Improve quad strength & endurance ○ Progress functional activities, balance, proprioception ○ Progress to normal gait
PRECAUTIONS	<ul style="list-style-type: none"> ○ No impact activities or plyometrics ○ Avoid posterior knee pain with deep flexion exercise ○ Avoid single leg squats
RANGE OF MOTION EXERCISES	<ul style="list-style-type: none"> ○ Continue exercises from phase 2. ○ Can add hip ROM, avoid torque on knee joint with hip ER/IR
SUGGESTED THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> ○ Continue phase 2 exercises ○ Straight leg raises in 4 planes, minisquats (0-45) can add rubber tubing ○ Hamstring curls ○ Knee extension, active 90-30 deg ○ Hip & gluteal strengthening ○ Leg press 70-10 deg, double leg squats, dynamic & static lunges ○ 2 legged balance board ○ Resisted gait training ○ Upper body & core strengthening ○ Closed chain strengthening knee flexion from 10-70
CARDIOVASCULAR EXERCISE	Week 12- Non-impact endurance training: stationary bike (high seat no resistance), elliptical and stairmaster. Pool walking
PROGRESSION CRITERIA	<ul style="list-style-type: none"> ○ Normal gait on all surfaces without assistive device ○ Able to perform ADLs without problem ○ Full, painless range of motion ○ Can walk 20 minutes without pain

PHASE 4- 16-21 weeks postop

REHAB GOALS	Improve muscle strength & endurance Progress functional activity
PRECAUTIONS	Post-activity soreness should resolve within 24 hours Avoid post activity swelling Avoid posterior knee pain with deep flexion exercise No knee flexion past 90 deg with closed chain exercises until week 20
RANGE OF MOTION EXERCISES	Continue with flexibility exercises
SUGGESTED THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> ○ Progress phase 3 activities with resistance/weight ○ Progress balance and proprioceptive exercises from Phase 3 to single leg stance, unstable platform ○ Step ups/downs ○ Multidirectional lunges
CARDIOVASCULAR EXERCISE	Stationary bike (high seat), pool walking, swimming (straight leg kick), stairmaster, nordik trak, elliptical.
PROGRESSION CRITERIA	<ul style="list-style-type: none"> ○ Full range of motion ○ 15 second single leg stance without pelvic drop/knee valgus ○ Quadriceps index 80%

PHASE 5- 22+ weeks

REHAB GOALS	Progress functional activity & strengthening Balance & hamstring and quad strength within 10% of contralateral Return to sport
PRECAUTIONS	Post-activity soreness should resolve within 24 hours Avoid post activity swelling No deep squats until 6 months postop
RANGE OF MOTION EXERCISES	Continue with flexibility exercises
SUGGESTED THERAPEUTIC EXERCISES	<ul style="list-style-type: none"> ○ Progress strengthening from phase 4, maintain ROM limits on strengthening exercises. Ok to begin single leg squats <70 deg flexion ○ Progress balance/proprioception from phase 4 ○ Plyometrics: must have completed return to running program, level surface box hops, double leg hops (land in flexion), single leg hops, vertical box hops.

	<ul style="list-style-type: none"> ○ Agility: carioca, figure 8 if tolerated after initiation of plyometrics. Begin at low speed and progress as tolerated. Need 80% strength of contralateral to progress. ○ Sport specific drills, cutting- can begin once plyometrics & agility completed
CARDIOVASCULAR EXERCISE	<ul style="list-style-type: none"> ○ Continue to progress from phase 4. ○ Walk run progression at week 22 (must have at least 75% quad index)
PROGRESSION CRITERIA	<ul style="list-style-type: none"> ○ Balance, hamstring & quad strength within 10% of normal side ○ No patellofemoral irritation, pain or swelling ○ Completion of functional and running programs ○ No issue with trial return to sport