

Patellar Instability Rehabilitation Protocol

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Referral for Rehabilitation Services

Patient Name: _____ Diagnosis: _____ PT Duration: _____ / Week _____ Weeks

Phase	Precautions	Treatment Recommendations	Emphasize
Phase 1: Protection Phase Weeks 0-3 <i>Criteria for Advancement:</i> -Fair to good quadriceps contraction -Good patellar mobility in medial direction -ROM: 0° knee extension to 90° knee flexion -0/10 pain at rest -Able to SLR pain-free without quadriceps lag	<ul style="list-style-type: none"> Ambulation without brace or without crutches Lateralization of patella Symptom provocation: quadriceps shut down, joint effusion, active inflammation 	<ul style="list-style-type: none"> Emphasize patient compliance to HEP and ambulation Ambulation: WBAT with assistive device to normalize gait pattern. Brace: MD directed; until able to perform pain-free SLR without a lag Cryotherapy: home cold therapy unit Electrical stimulation for quadriceps re-education: quadriceps sets with towel roll under knee Sitting knee ROM exercise: AAROM KF, PROM KE, stationary bike (short crank 90-115°KF) Quadriceps strengthening: progress as tolerated in a pain-free arc of motion, close chain preferred <ul style="list-style-type: none"> o Estim, biofeedback o Quad set with towel roll under knee; submaximal multi angle isometrics, as needed o Leg press: initiate with improvement of quadriceps contraction monitor arc of motion (bilateral) Hip progressive resisted exercises: all planes, pain-free SLR with brace if lag is present Distal strengthening (PF) Flexibility exercises (hamstrings, gastrocnemius) Initiate balance and proprioceptive training: double limb support for weight shifting with soft knee Gait training 	<ul style="list-style-type: none"> Normalize gait with appropriate assistive device Improving quadriceps contraction Controlling pain/effusion Compliance with home instructions: cold therapy, activity modification, quadriceps re-education with estim unit Straight leg raise (SLR) without lag, pain-free Independent ambulation WBAT w/ brace locked in full extension and appropriate assistive device on level surfaces and stairs
Phase 2: Gait Phase Weeks 4-6 <i>Criteria for Advancement:</i> -ROM 0°-125° -Normal gait pattern -Good patella mobility -Postural stability, alignment and N-M control in single limb stance -0/10 pain with ADLs and therapeutic exercise -Independent HEP	<ul style="list-style-type: none"> Sign and symptom provocation: pain, inflammation, quadriceps shut down, joint effusion Concomitant injuries Lateralization of the patella Pathological gait pattern (quadriceps avoidance; bent knee) 	<ul style="list-style-type: none"> HEP: advance as tolerated. Continue phase I exercises, as appropriate Patient education: Activity modification, progression of gait training, cryotherapy Patellar mobilization, MD directed ROM exercises: <ul style="list-style-type: none"> o Short sitting progressing to stair ROM, supine wall ROM as tolerated (-125°KF in sitting, quad control) Gait training: heel toe gait pattern with brace and assistive device, prn Quadriceps strengthening: progress as tolerated in a pain-free arc of motion, close chain preferred <ul style="list-style-type: none"> o Continue with Estim, biofeedback, quad sets, submaximal multi angle isometrics, as needed o Leg press: monitor arc of motion (bilateral, eccentric) o Initiate forward step up (FSU) progression, 6" step with adequate strength 	<ul style="list-style-type: none"> Symptom control with ADLs, therex Minimizing knee effusion Normal gait pattern Postural stability, alignment, neuro-muscular (N-M) control during stance Control pain, inflammation, effusion Good patella mobility, quad contraction Normalize gait w/ brace, assistive device prn

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Phase 2: Gait Phase

Weeks 4-6 (continued)

- Arc of motion during exercise
- Bicycle: progressing to standard crank as ROM allows (115° KF in sitting), 80 RPMs
- Flexibility exercises - evaluation-based: AROM KF with hip extension in standing
- Advance proximal strength and core training: (i.e. hip extension with knee flexion, side planks, bridge)
- Hydrotherapy for gait, single limb alignment and stability, proximal strengthening
- Balance and proprioceptive training: double limb support on progressively challenging surfaces to single limb support on level surface only with demonstration of good alignment, stability and N-M control

Phase 3: Strengthening Weeks 7-16

Criteria for Advancement:

-ROM WNLs

-No pain or swelling

-Normalize gait on level surfaces and stairs

-Ability to demonstrate

alignment, control, stability in single limb

stance during dynamic activities

-Core stability: Single leg bridge - 30 s, Sahrmann * level 3

-Symmetry, quality, alignment during selected movement patterns

-Isokinetic test at 180°/sec and 300°/sec: 85%

limb symmetry index (LSI)

- Sign and symptom provocation: pain, and active inflammation/effusion, quadriceps shutdown
- Gait deviations
- "Too much, too soon" progression
- Disregarding quality of movement
- HEP, as instructed
- Educate patient: Activity modification, individualized, and cryotherapy
- Quadriceps strengthening: progress as tolerated, monitor arc of motion, closed chain preferred
 - o FSU progression: 6" step progressing to 8" step (dependent on patient height)
 - o Eccentric leg press progressing to:
 - o Forward step down (FSD) progression: 6" step progressing to 8" step (dependent on patient height)
 - o Squat progression: chair, ball if necessary with buttocks moving under ball, free squats to single leg
- ROM exercises: supine
- Gait training to emphasize heel-toe gait pattern with emphasis on loading response
- Advance proximal strength through functional activities (bridging progression, hip extension with KF, clock, RDL, windmill, lawn mower) and core training (planks, side planks, Sahrmann progression)
- Balance progression with postural alignment and N-M control: (static to dynamic, introduce different planes of motion, challenging surfaces middle phase)
- Address muscle imbalances — evaluation-based: (i.e. 2 joint hip flexor length)
- Cross training: elliptical trainer initiated with good strength/ quality during 6' FSU, bicycle (80 RPMs), swimming (crawl, back stroke)
- Initiate running program (late phase): with eccentric quadriceps control during 8" FSD and MD clearance 30 second interval initially
- Initiate plyometric program with MD clearance and evidence of good eccentric quadriceps control Vertical jumping progression: Jump up to jump in place
- Identifying and addressing muscle/ soft tissue imbalances
- Neuromuscular control
- Functional progression
- Quality of movement
- Initiate running program, plyometrics (bilateral)
- Symmetry, quality, alignment during selected movement patterns: squat, jump in place, side to side

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Phase 4: Advanced Strengthening and Function
Weeks 16-20+

Criteria for Advancement:

-Demonstrate symmetry, quality, alignment during selected movement patterns

-Medical clearance by surgeon for return to play progression

-Lack of apprehension with sport specific movements

-Flexibility to meet demands of sport

- Pain with therapeutic exercise & functional activities
- Inadequate strength, functional strength, ROM, flexibility, fitness when returning to sport
- Continue to advance LE strengthening, flexibility, dynamic single limb stability & agility programs
- Continue to address muscle imbalances — evaluation-based
- Advance core stability
- Cross training
- Advance plyometric program with MD clearance and evidence of good eccentric quadriceps control
 - o Vertical jumping progression: Jump down
 - o Horizontal jumping progression. Broad jump, single leg landings
 - o Progress running program
 - o Cutting, deceleration, change of direction with MD clearance and dynamic single limb stability
- Quality of movement
- Functional progression
- Cardiovascular fitness to meet demands of sport
- Ability to demonstrate strategy, symmetry, quality, control and alignment during selected movement patterns: squat, jump (vertical and horizontal: broad jump, hop to opposite, single leg hop), single leg squat, Isokinetic test: 180° / sec and 300° / sec 85% limb symmetry index (LSI)

Protocol adapted from Hospital for Special Surgery Rehabilitation patellar instability guidelines

I hereby certify these services as medically necessary for the patient's plan of care.

Physician's Signature

Date_____

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