ORTHOSURGERY
Ιατρείο Ορθοπαιδικών Παθήσεων

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CLINICAL PROTOCOL FOR PATELLOFEMORAL DYSFUNCTION

FREQUENCY: 2-3 times per week.

DURATION: Average estimate of formal treatment 2-3 times per week X 4-6 weeks based on

Physical Therapy evaluation findings. Continued formal treatment beyond meeting Self-Management Criteria will be allowed when:

1. Patient out of work or to hasten return to work full duty.
2. Athlete needs to return to organized athletic program.

DOCUMENTATION: Progress Note to physician at each follow-up appointment. Follow treatment

calendar for daily requirements. Discharge Summary within 1 week of discharge.

INITIAL EVALUATION (VISIT 1)

GOALS:

1. Evaluation to assess: Gait pattern, active/passive range of motion, quadriceps recruitment, patellar mobility, pain/inflammation, postural/biomechanical abnormalities.

! When patient meets the following **SELF-MANAGEMENT CRITERIA**:

Trace to 1+ effusion.

Good voluntary contraction of quadriceps complex particularly that of the vastus medialis oblique. This will be determined by placing fingertip of index finger on superior pole of patella and when patient performs an active quad set supine if the patella moves up underneath the fingertip this will be 10 mm of superior glide and that will be considered a good voluntary contraction.

Symmetrical active extension to 125 degrees active flexion.

Normal gait pattern.

No significantly abnormal foot, knee, or hip mechanics.

Minimal to no limitations in patellar mobility.

At least 4/5 hip, knee, and ankle strength.

Independent with use of dynamic patellar stabilizing brace or McConnell tape if indicated.

Squat to 90 degrees pain-free.

Minimal to no pain.

then patient can be instructed in either home exercise program or program to be performed at a local health club with follow-up appointments every 1-2 weeks until discharge criteria has been met. Please refer to handout for home exercise program instructions/exercises.

! If patient does not meet above criteria, then a course of formal rehabilitation will be initiated 2-3 times per week until criteria has been met which will be augmented by a home exercise program as appropriate. Frequency of weekly appointments will depend on severity of the problem as well as the patient's availability, working status, choice/interest, and return to athletic competition.

DISCHARGE CRITERIA

! Symmetrical hip, knee, and ankle active range of motion or within 90% of uninvolved active flexion.

! Minimal to no patellar mobility limitations; additionally, central tracking of the patella within the trochlear groove is noted with active knee extension.

! No effusion following aggressive activity.

! Good size and normal synchronous recruitment of the vastus medialis oblique.

! Normal gait pattern.

! 4+/5 strength of ankle and hip musculature with hip adductors and ankle dorsiflexors being the exception at 5/5 strength, 5/5 strength of quadriceps, and 4+/5 hamstring strength.

! 85-90% quadriceps and hamstring strength compared to uninvolved knee musculature according to isokinetic evaluation if athlete.

! Full squat/kneel pain-free.

! Jog/Run pain-free.

! Good understanding and performance of home exercise program.

! Met, or consistently progressing toward, established functional/objective outcomes.

! Failure to progress.

! Failure to comply.

--TREATMENT GUIDELINES--

WEEKS 1 TO 3

GOALS:

1. Minimal to no pain with ambulation.
2. Eliminate effusion.
3. 0 to 120 degrees active range of motion.
4. Compliant with home exercise program.
5. Independent with use of dynamic patellar stabilizing brace or McConnell tape, if indicated.

! Edema reduction techniques as indicated.
! Gait training as indicated.
! NMS for muscle re-education of the quadriceps complex emphasizing the vastus medialis oblique when inhibition or VMO dysplasia/insufficiency is noted. Initiate in supine in conjunction with quad setting and progress to multi-angle isometrics. NMS may also be used with closed chain activities (i.e. partial squats, step-ups, single limb balance) as appropriate with use of a patellar stabilizing brace or McConnell tape.
! Stationary bicycle, high seat with low resistance at moderate cadence (90-120 rpm).
! Manual stretching of lower extremity musculature if indicated emphasizing the quadriceps, hamstrings, iliotibial band, and gastrocnemius/soleus. For other major muscle groups of lower extremity musculature, the patient should be performing self-stretching. For specifics, please see Lower Extremity Flexibility Protocol.
! Manual patellar mobilization emphasizing medial glide and tilt.
! McConnell taping techniques may be used to augment a patellar stabilizing brace. The clinician should work toward central tracking of the patella, usually with a medial glide and tilt. A rotational component may also be considered.

WEEKS 1 TO 3 (continued)

! Strengthening program utilizing the Total Gym, weight stack equipment, Theraband, or cuff weights should include the following: Prone, standing, or seated hamstring curls, multi-plane straight leg raises in standing (abduction should only be encouraged if less than 4/5 strength is evident; conversely, hip adduction strength should be a priority), heel raises in standing and seated, leg press, and ankle PRE. Emphasis should be placed on closed chain strengthening initially in mid-range (-20 to 80 degrees), and

also emphasis should be placed on eccentric ankle dorsiflexion. For specifics regarding guidelines for initiation of strengthening program and exercises to be utilized, please refer to Lower Extremity Strengthening Program Protocol.

! Balance/Proprioception activities. Please refer to Phase I of Functional Balance/Proprioception/ Agility Protocol.

! A cardiovascular component may be added for 20-30 minutes. Use of the upper body ergometer would be appropriate.

WEEKS 3 TO 6

GOALS:

1. Meet Self-Management Criteria.

! Continue with treatment as indicated in Weeks 1 to 3.

! Continue with manual patellar mobilization and McConnell taping techniques/dynamic patellar stabilizing brace as indicated.

! Continue with manual stretching program.

! Continue with comprehensive isotonic strengthening program. Quadriceps strengthening should continue to be done with the patella seated within the trochlear groove (-20 to 80 degrees).

! May initiate isokinetic submaximal quadriceps and hamstring concentric strengthening program in range of 90 degrees to -30 degrees, high speeds only (270 degrees/second or higher) X 3 sets of 15-20 repetitions.

! Progress balance/proprioception activities. Please refer to Phase I/II of the Balance/Proprioception/ Agility Protocol.

! Continue cardiovascular component. Use stationary bicycle with seat elevated, swim (crawl stroke only), or stairmaster (small, rapid steps).

WEEKS 6 TO DISCHARGE

GOAL: Meet Discharge Criteria.

! Continue with independent flexibility program.

! Continue with comprehensive strengthening program to include abdominals, multi-hip for flexion, abduction, adduction, and extension, leg press, sitting/standing heel raises, hamstring curls, and leg extensions 90 degrees to -30 degrees.

! Isokinetic test may be conducted. Two speed bilateral test at 180 degrees/second and 300 degrees/second. If patient meets the following criteria: 20-25% deficit in quadriceps and hamstrings, the patient may begin run/jog program. See handout for program.

! May progress balance/proprioception/agility activities. Please refer to Phase II/III of the Balance/ Proprioception/Agility Protocol.

! May incorporate work/sport specific activities as indicated.

! Progress cardiovascular conditioning using the following: Stairmaster, cross country ski device, stationary bicycle, walking, and swimming.