



REHABILITATION GUIDELINES FOR NON-OPERATIVE PATELLOFEMORAL PROGRAM

PAIN CONTROL: Discontinue or minimize symptoms producing activities including prolonged sitting with knees flexed, activities of daily living, stairs, climbing, and sports that involved significant use of quadriceps. Home icing program prn swelling, electrical stimulation of VMO, compression/massage prn swelling.

ROM: as tolerated; This should include passive prone quadriceps stretching and passive supine straight-leg hamstring stretching. Passive iliotibial band and groin stretching is also encouraged. Passive medial patellar glides and medial patellar tilting passively. Gastrosoleus stretching.

STRENGTH: Progress as pain allows. Quadriceps exercises—modify as necessary to minimize knee pain (isometric at or near extension or short arc with open or closed chain exercises), hamstrings completed within tolerated ROM. Emphasize VMO strengthening.

Endurance: Initiate with 10 repetitions 2-3 times per day. Repetitions are increased by 5/day to a maximum of 30 repetitions. Repetitions are then reduced to 10 and 1 pound weight is added to the ankle. Repeat until lifting 3-5 pounds for 30 repetitions. Progress to PRE's as symptoms indicate.

PRE's are completed 3 times per weeks with 3 sets each day.

Quadriceps: Isometric, terminal knee extensions, closed chain, progression to full range as tolerated; 100-50 degrees open chain knee extension.

Hamstrings: within FROM

Adductors: Isometric, isotonic, or isokinetic

Gluteus medius: strengthening if weak.

Cardiovascular conditioning: Nordic track, bike, slideboard, "Functional Rehabilitation Program" for running, progress to Stairmaster or equivalent exercise as tolerated.

WEIGHTBEARING: As tolerated.

MODALITIES: EMG biofeedback to VMO to enhance control during exercises, ambulation, and sports/work specific movements. May use EMG biofeedback to vastus lateralis to enhance inhibition of VL during exercises, ambulation, and sports/work specific movements.

EMS to VMO. Cryotherapy after exercises. Ultrasound to areas of tendonitis such as inferior patellar tendon, quadriceps tendon or medial/lateral retinaculum.

BRACING: McConnell taping +/- patellofemoral brace(Palumbo type), especially with hypermobility of patella and VMO insufficiency

FOOT EVALUATION: possible shoe/orthotic modification

Start functional rehabilitation or work conditioning as tolerated.

(Copyright Miguel A. Schmitz, MD, PC, March 2003)