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Rehab Guidelines for Anterior Knee Pain

RATIONALE:

The number of patellofemoral (PF) problems being evaluated by physicians is increasing yearly, subsequently leading to an increase in the number of PF patients seen in rehabilitation facilities throughout the country. No single cure exists for the treatment of PF pathologies, making this both a challenging and sometimes frustrating problem to treat. Knowledge of joint mechanics, anatomy, and the existing literature is paramount if one wishes to be successful in the treatment of this problem.

This suggested exercise program is divided into three goal-oriented phases. Goals in each phase must be realized before progressing to the next phase. The clinician must pay close attention to the listed precautions and must be a good educator for the program to be successful.

PHASE I - ACUTE PHASE

GOALS:

- Education
- Decrease pain
- Decrease swelling
- Decrease palpable tenderness
- Improve gait deviations
- Restore normal mechanics

SUGGESTED TREATMENT:

- Modalities to include:
 1. Ice
 2. Phonophoresis
 3. Moist heat
 4. Electric stimulation
- Taping
- Cane, crutches
- Initiate flexibility for hamstrings, triceps surae, quadriceps, and iliotibial band
- Initially start with isometrics only
- Use immobilizer, if acute
- Opposite extremity and upper body exercises

PRECAUTIONS:

- Program should not increase patient's symptoms
- There should be no pain associated with these exercises

PHASE II – SUB-ACUTE PHASE

Phase II begins when resting pain is resolved; swelling is decreased; and palpable tenderness is moderate to minimal

GOALS:

- Education
- Balance length and strength of lower extremity musculature
- Increase quadriceps strength (VMO control)
- Good patellar mechanics

SUGGESTED METHODS:

- Avoid activities and positions which increase the patellofemoral joint reaction forces
- Strengthen weak muscles
- Suggested exercises - quad sets, straight leg raises, wall squats, mini-squats, closed kinetic chain strengthening (ex. Slow motion walking, leg press, step ups, resistive bends in weight-bearing, be innovative with weight bearing activities)
- Stretching tight muscles - hamstring, glut, **IT** band, low back, calf, hip flexor
- Patellar mobilizations - assistance of **PT** and instruction in self patellar mobilizations, medial glides and lateral tilts (only if needed)
- Electric stimulation to the VMO
- Temporary and/or permanent orthotics for balancing the foot
- Pain free biking (high seat, low resistance)
- Overall conditioning program (avoid open chain knee extension exercises)

PRECAUTIONS:

- Do not work through pain and Program should not increase patient's symptoms

PHASE III - FUNCTIONAL PHASE

GOALS:

- Pain free functional closed chain activities (steps, jogging, running, and sport specific activities)
- Return patient to unrestricted pain free activities

SUGGESTED METHODS:

- Functional activities in closed chain position
- Slow motion walking
- Squats
- Cariocas
- Biking
- Leg press
- Stairmaster
- Jogging, Running
- Speed and agility drills progressing to curve cuts and sharp cuts and one-legged hops

PRECAUTIONS:

- Avoid full range open chain knee extension exercises
- No stretching of the adductor muscles