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Nonoperative Treatment of Knee Pain/Strain Physical Therapy Guidelines

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These guidelines should be tailored to individual patients based on their rehab goals, age, precautions, quality of repair, etc. Progression should be based on patient progress and at the discretion of the physical therapist.

Phase 1: Acute/High-Moderate Irritability
TREATMENT RECCOMENDATIONS

- Patient education
  - Improve neuromuscular control/muscle activation
  - Understanding PF loads and activity modifications that are age appropriate
  - Standing posture
  - Deficits identified and plan of care including goals
- Manual treatment
  - Edema/effusion management
  - Lower extremity (LE) soft tissue and joint mobility
- Knee PROM/active assisted range of motion (AAROM)/AROM as needed
- Movement strategies (importance of hip strategy versus knee strategy)
- Proximal and distal stretching
- Strengthening
  - Quadriceps/hamstring isometrics, progress to isotonics as tolerated
  - Proximal and distal strengthening
  - Core stabilization
- Balance/proprioception training
- Modalities
  - External supports, as needed (bracing or taping)
  - Ice, compression, Transcutaneous electrical nerve stimulation (TENS): to address pain & edema
  - Neuromuscular electrical stimulation (NMES), biofeedback, Blood Flow Restriction (BFR) for muscle activation/strengthening
- Gait training with appropriate assistive device, if needed
- Home exercise program (HEP)

Phase 2: Sub-Acute/Moderate Irritability Phase
TREATMENT RECCOMENDATIONS

- Patient education
  - Reinforce compliance with updated HEP
  - Movement strategy

- Address flexibility and ROM deficits
    - Soft tissue mobilization/massage therapy
    - Joint mobilization, as needed (patella, ankle, hip)
    - Foam rolling
    - Stretching
- Strengthening
    - LE and core
- Neuromuscular control
    - Bilateral progressing to single limb stance
    - Focus on hip/knee/ankle control with single limb activities
- Modalities
- Continued external supports (bracing, taping, shoe inserts), as needed
- BFR/NMES for muscle activation/strengthening
- Progress HEP
- Cardiovascular training

CRITERIA FOR ADVANCEMENT

- Pain well managed with activities and ADL
- Able to complete single limb activities with good alignment and control
- Able to demonstrate a hip strategy for appropriate movements
- Normalized gait on level surfaces

EMPHASIZE

- Compliance with activity modification
- Edema/effusion and pain control
- Good neuromuscular control/alignment with single limb support
- Monitor onset of new pain/symptoms
- HEP compliance

Phase 3: Chronic/Low Irritability Phase

TREATMENT RECCOMENDATIONS

- Patient education
    - Reinforce compliance with updated HEP
    - Functional progression
    - Adequate rest and recovery

- Address flexibility and ROM deficits
    - Soft tissue mobilization/massage therapy
    - Joint mobilization, as needed (patella, ankle, hip)
    - Foam rolling
    - Stretching
- Strengthening progression
    - LE and core
    - Progression of body weight exercise
        - double leg to single leg exercise (e.g. deadlift to single leg deadlift)
- Functional strength

- Squat progression
- Stair progression
- Neuromuscular control
- Cardiovascular training via low/non-impact activities such as elliptical, bicycle, etc.
- Aquatic therapy, if available (see Appendices 2, 4, and 5- aquatic therapy)
- Initiate return to running: antigravity treadmill if available

CRITERIA FOR DISCHARGE OR ADVANCEMENT TO PHASE 4 (IF RETURNING TO SPORT)

- Independent with control of symptoms
- Pain free with modified activities and ADL
- Able to demonstrate bilateral body weight squat with proper alignment and control
- Able to descend a 6-8" step with good control and alignment (dependent upon patient's height)
- Discharge to long term HEP or progress to Phase 4 if goal is to return to sport.

EMPHASIZE

- Quality with functional activities
- Progression of pain free PF loading
- Eccentric quadriceps control

Phase 4: Return to Sport

TREATMENT RECCOMENDATIONS

- Progressively increase volume and PF load to mimic load necessary for return to activity
- Introduce & progress movement patterns specific to patient's desired sport or activity
- Introduce and progress agility work
- Increase cardiovascular load to match that of desired activity
- Consider collaboration with certified performance specialist and/or coach for complex sports specific training, if available

CRITERIA FOR DISCHARGE

- Ensure that there is a plan in place for a graded return to full or modified activity based on patient's maximal therapeutic activity (e.g., performance specialist/coach

EMPHASIZE

- Progression of pain-free PF loading
- Eccentric quadriceps control
- Movement quality with functional activities
- Readiness for sport