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MCL PROTOCOL

IMMEDIATE POST INJURY PHASE DAY 1 to DAY 3

EMERGENCY MANAGEMENT INCLUDES:

A. Protection

1. Protected ambulation - PWB to WBAT
2. Bracing
 - a. Grades I & II - as ordered by physician, full pain-free ROM allowed
 - 1) bilateral upright hinge
 - 2) DonJoy (IROM)
 - 3) Playmaker
 - b. Grades II & III - rehab brace with ROM limited -10° to 75°

B. Ice

C. Compression

D. Elevation

E. Accurate diagnosis is crucial to rule out associated injury, which may alter treatment plan

EARLY POST INJURY PHASE DAY 3 to Approximately 3 WEEKS

A. Continue bracing as described above

B. Continued protected ambulation PWB to WBAT

C. Exercise

1. Grades I & II
 - a. Patellar glides & tilts
 - b. Active ROM - to be performed within pain free limits
 - c. ROM in swimming pool/whirlpool
 - d. Isometrics for quad, hams including both PNF and spectrum
 - e. Bike with high seat & low resistance for ROM
 - f. Hamstring/calf stretching in a NWB position
 - g. Resisted hip exercise with weights proximal for abduction and adduction
 - h. Resisted ankle exercise utilizing Theraband or rubber tubing for resistance
 - i. Resisted exercise for upper body and non-involved leg to maintain strength conditioning
2. Grade III
 - a. Patellar glides and tilts
 - b. AROM - 15° to 75° for 4 weeks, then full ROM afterwards

- c. Isometrics for quads and hams, including PNFs
 - d. Resisted hip exercise with weights proximal for abduction and adduction
 - e. Resisted ankle exercises
 - f. Resisted exercises for non-involved leg and upper body -include single leg biking (noninvolved)
- D. Modalities - (prn)
- 1. Whirlpool
 - 2. Ice (post exercise)
 - 3. Electrical stim for pain and swelling control and/or muscle re-education/strengthening
 - 4. Biofeedback to improve quad control

INTERMEDIATE POST INJURY PHASE

BEGIN ONCE FULL ROM IS ACHIEVED - GENERALLY 3-6 WEEKS POST INJURY

- A. Grades I, II, & III
- 1. Eliminate brace for ADL
 - 2. Progress to full weightbearing without assistive devices increasing distance as tolerated
 - 3. Exercises
 - a. Bike with high seat and low resistance - progress from 5-7 minutes initially to 15-30 minutes
 - b. Flexibility exercises as determined by assessment of patient
 - 1) hams
 - 2) calf
 - 3) quad
 - 4) hip flexors/TFL
 - c. Physiologic knee extension (0° - 45°)
 - 1) leg press
 - (a) supine with sports cord
 - (b) leg press machine
 - 2) mini squats
 - (a) standing isometrics
 - (b) bilateral mini squats
 - (c) unilateral mini squats
 - (d) standing sports cords
 - (e) mini squats with free weights
 - d. Resisted knee flexion
 - e. Resisted hip/ankle exercises
 - f. Proprioception activities
 - 1) single leg support on solid base of support to progressively unstable surfaces (floor to mini tramp)
 - 2) BAPS board, Dyna Disk
 - 3) Profitter
 - g. Swimming
 - 1) free style (no breast-stroke)
 - 2) functional activities

RETURN TO SPORT

- A. Continue with previous activities to increase flexibility, strength, and muscular and cardiovascular endurance. Emphasis is on reconditioning for return to sport.
- B. Continue proprioceptive activity progressing as tolerated
- C. Begin functional strengthening program - sport-specific modified plyometrics program
 - 1. Slow speed to high speed
 - 2. Bilateral to unilateral support
 - 3. Low to moderate heights
 - 4. Soft to hard surfaces

D. Functional activities progression

1. Walk/jog (flat track) - start at one-half mile, walk curves and jog straightaway - progress to 2 miles
2. Straight jogging (flat track) - start at one-quarter mile - progress to 2 miles
3. Three-quarter speed running (flat track) - start with 20 yard sprints, doing 4-10 reps
4. Full speed sprinting - 20 yard sprints, doing 4-10 reps
5. Backward jogging - 20 yard jog, doing 4-10 reps
6. Backward three-quarter speed running - 20 yard run, doing 4-10 reps
7. Backward sprint - 20 yard sprint, doing 4-10 reps
8. Lateral slides (defensive drills) one-half to three-quarter to full speed
9. Zigzags one-half speed (soft cuts) - 5 yard increments for 20 yards, progress 2-5 times
10. Zigzags three-quarter speed (soft cuts) - 5 yard increments for 20 yards, progress 2-5 times
11. Zigzags full speed (soft cuts) - 5 yard increments for 20 yards, progress 2-5 times
12. Linebacker drills - one-half, three-quarter and full speed, backward-forward-side-to-side in 10 yard increments, progress 2-5 times
13. Backward zigzags - one-half, three-quarter and full speed, 10 yard increments, progress 2-5 times
14. Figure eight's - one-half, three-quarter and full speed - progress from large circles to smaller circles then to faster speeds, progress from 5-10 times

E. Criteria for return to sport:

1. No signs of active inflammation
2. Full ROM and normal flexibility
3. Isokinetic testing - bilateral comparison of peak torque and work within 85% of non-involved limb and ham to quad ratio of 65%
4. Functional tests
 - a. Vertical jump
 - 1) bilateral
 - 2) unilateral comparison
 - b. Standing broad jump
 - 1) bilateral
 - 2) unilateral comparison
5. Completion of functional progression leading to full participation in sport

F. Protective bracing as ordered by physician

1. Lateral knee guards
2. Functional knee braces

**MAINTENANCE
CONTINUE FLEXIBILITY AND STRENGTH TRAINING**