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Microfracture Chondroplasty Protocol

I. Phase 1 – Proliferation Phase (weeks 0-4)

Goals:

- Protect healing tissue from load and shear forces
- Decrease pain and effusion
- Restoration of full passive knee extension
- Regain quadriceps control

Weight Bearing (WB)

- WB status varies on lesion location and size
- For medium to large femoral condyle lesions (>2.0cm): non-WB for 2 wk, begin TTWB @ wk 3, progress to partial WB by week 4.
- For small femoral condyle lesions (<2.0cm): immediate toe touch WB (per physician) @ 0-2 wks, progress to 50% WB by wk 3, 75% WB by wk 4.
- For patellofemoral lesions: immediate toe touch WB of approximately 25% with brace locked in full extension, progress to 50% WB @ wk 2, 75% WB wk 3 with brace locked in full extension, full WB wk 4.

ROM:

- Obtain full passive knee extension immediately.
- Patellar Mobs (4-6 times per day)
- Minimum ROM goals:
 - Wk 1: 0-90 Wk 2: 0-105 Wk 3: 0-115 Wk 4: 0-125
- Stretch Hamstrings and Calf

Strengthening program:

- Ankle pumps
- Quad sets
- Multi angle isometrics (co-contractions Q/H)
- SLR in 4 directions
- Calf raises wk 4 small femoral condyle lesions and patellofemoral lesions.
- May begin pool for gait training and exs wk 3-4, when incision is fully healed.
- Stationary Bike wk 3-4, low resistance

Criteria to progress to phase 2:

- Full passive extension
- Knee flexion to 125
- Minimal pain and swelling

- Voluntary quad activity

II. Phase 2 – Transition Phase (weeks 4-8)

Goals:

- Gradually improve quadriceps strength/endurance
- Gradual initiation of functional activities
- Progress weight bearing as tolerated
- Maintain full extension ROM and gradually increase flexion ROM

Exercises:

- Continue patellar mobs
- Continue stretching program
- Mini squats
- Toe-calf raises
- Progress balance and proprioception exercises
- Initiate front lunges, wall squats , front and lateral steps ups

III. Phase 3 – Remodeling Phase (weeks 8-16)

Goals:

- Improve muscular strength and endurance
- Increase functional activities
- ROM should be 125°-135°+

Exercises:

- Leg Press (0-60°)
- Bilateral Squats (0-60°)
- Unilateral step ups progressing from 2-8 inches
- Hip strengthening (abduction and adduction)
- Walking program at week 10
- Continue progressing balance and proprioception
- Bicycle
- Stairmaster
- Swimming/pool exs
- Elliptical/Nordic-Trak

Criteria for advancing to Phase 4:

- Full non-painful ROM
- Strength within 80%-90% of contralateral side
- Balance and/or stability within 80%-90% of contralateral side
- No pain, inflammation, swelling

IV. Phase 4 – Maturation Phase

Goal: Gradual return to full unrestricted functional activities

Exercises:

- Continue maintenance program progression 3-4 times/week
- Progress resistance as tolerated
- Emphasis on entire lower extremity strength and flexibility
- Progress agility and balance activities
- Impact loading program should be individualized to patient's needs
- Progress sport specific programs per patient needs

Dates for return to sports:

- Low impact – swimming, skating, cycling 2-3 months
- Moderate impact activities – jogging, running, and aerobics 4-5 months
- High impact activities – football, basketball, baseball, tennis 6-8 months