Goshen Physicians

ORTHOPEDICS & SPORTS MEDICINE

Knee Chondroplasty/Debridement

Chondroplasty/debridement of chondral injuries to the knee are basic marrow stimulation techniques designed to remove mechanical symptoms as well as stimulate fibrocartilage regeneration to protect the defect. The defect is shaved back to a stable base to remove any mechanical blocks or loose bodies. Progression is based upon location of defect, tissue quality, grade of defect (I-IV), and concomitant procedures (if any).
This protocol is a general guideline and may be altered to accommodate specific surgical techniques, complications and/or tissue quality. Progression is based upon healing times as well as functional progression. In advancing treatment variables the patient is closely monitored for increase pain and effusion which may indicate the repair site is unable to tolerate the stress loads placed upon it.

Outerbridge Articular Cartilage Classification:

Grade I: softening of articular cartilage, soft discolored superficial fibrillation (partial thickness)
Grade II: fibrillation with fragmentation < 1/3 cm^2 (partial thickness)
Grade III: fissuring with fragmentation > 1/3 cm^2 (full thickness)
Grade IV: complete loss of articular cartilage with erosion to subchondral bone (full thickness)

Small lesions: less than 2 cm^2
Moderate lesions: 2-10 cm^2
Large lesions: greater than 10 cm^2

Program:

Weeks 1-4: Progression to WBAT with crutches as patient demonstrates a normal gait pattern, minimal effusion (1-1.5cm) and demonstration of adequate quad control.
AROM as tolerated although caution is taken to avoid compressive/shear forces to defect site.
Control knee effusion, Ice and Elevation, 3-4 times per day
Biofeedback or Electrical stimulation for muscle re-education
Patella mobilization

Developed in conjunction with the physicians at OrthoCarolina

Isometrics for Quads, hip abductors and adductors

Straight leg raises (SLR) adding weight as able (absence of SLR lag)
Hip Flexion, Abduction, Adduction and Extension
Lower extremity flexibility program
Active Knee extension in painfree range (monitor patellofemoral complaints).
If patella/trochlea involved hold on **resistive** knee extension until 6-8 weeks.
Hamstring curls in pain free range
Progression to multi-hip machine

Weeks 4-6: ROM - Achieve full ROM by 4-6 weeks
Bike, pool, wall slides
Balance training on involved leg
Eyes open, eyes closed
Rocker board; progress to BAPS
Single leg balance, balance reach, etc. when allowed
Ball throws
Endurance training
Light bike work as ROM allows
Re-evaluate patello-femoral complex and address any dysfunctions
Closed chain strengthening exercises (PWB to FWB)
Squats, lunges, calf raises, leg press, step downs, sports cord, etc.

Weeks 6-8: Progressive resistance on Isotonic machines
Isokinetics
High speeds 150-300 degrees/second
Increase endurance activities
Increase resistance on the bike, pool, Elliptical, Versaclimber, walking,
Advance closed chain exercises to unsteady surfaces (pillow, half foam roll, BAPS board) as lower extremity muscle control allows

8-12 weeks: Full lower extremity biomechanical evaluation to address influence and/or "weak links" from hip and foot/ankle.
Continue strengthening exercises three times per week
Continue flexibility exercises daily

3-4 Months: **No Running until 3-4 months –** must display full ROM, no effusion, 80% or greater strength and minimal to no pain.
Jogging (begin with 1 mile jog/walk and increase in 1/4 mile increments, based upon pain and effusion)

Developed in conjunction with the physicians at OrthoCarolina

Once patient is able to jog 20 minutes (2-3 miles) with no discomfort or swelling may progress functional activities to include figure 8's, cutting, jumping, etc.
Sport specific activities (progressing as tolerated)
Backward running, carioca, ball drills & other sport skills

Criteria for Return to Sports:

Adequate healing time
Full pain free ROM
No effusion
Normal isokinetic evaluation and function tests
Satisfactory performance of sport specific activities without swelling