



Elbow Capitellum Osteochondritis Dissecans (OCD)
OATS Autograft from Knee

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- Phase I – Immediate Post-Op Phase (Day 0-10)

- Goals
 - Protect healing tissue
 - Decrease pain/inflammation
 - Decrease muscular atrophy
- Posterior splint at 90 degrees elbow flexion, applied at surgery
- Hand/wrist ROM exercises
- Knee ROM exercises as tolerated
- Ice to knee frequently to decrease swelling

- Phase II – Protection Phase (Week 2-6)

- Goals
 - Gradually restore elbow ROM
 - Improve muscular strength/endurance
 - Normalize joint arthrokinematics
- Week 3
 - Elbow Brace/ROM
 - Applied at 10 day post-op visit
 - May remove brace for ROM exercises
 - Brace set at 0-120 degrees
 - Begin elbow PROM/AAROM 0-120
 - Initiate elbow AROM for flexion
 - Exercises
 - Hand/wrist isometrics
 - Light shoulder ROM/Strengthening
 - Leave brace in place
 - Scapular strengthening
 - Light isotonic wrist/elbow/shoulder exercises
 - Initiate Thrower's Ten (for throwers)
 - Knee
 - No brace needed
 - ROM as tolerated

- Quad strengthening
- Week 4
 - Elbow Brace/ROM
 - 0-145 degrees
 - Progress elbow- and wrist-strengthening
 - Initiate wrist and elbow flexion against manual resistance
 - Knee: continue progressing strength and ROM
- Week 5
 - Elbow Brace/ROM
 - 0-145 degrees
 - Exercises
 - Wrist curls, flexion, extension, pronation, supination
 - Progress shoulder ROM, strengthening emphasizing cuff
- Phase II – Intermediate Phase (Week 6-12)
 - Goals
 - Full ROM
 - Promote healing of tissue
 - Improve muscular strength
 - Criteria to progress to Phase II – Intermediate Phase
 - Elbow PROM near full
 - Minimal pain/tenderness
 - Good MMT through elbow/shoulder key muscles groups
 - Week 6
 - Brace/ROM
 - Continue until end of week 6
 - Progress ROM to full
 - Exercises
 - Initiate Advanced Thrower’s Ten (for throwers)
 - 2-hand plyometrics: chest pass, side-to-side throws, overhead pass
 - Progress shoulder program
 - Emphasis on cuff strengthening
 - No IR against resistance
 - Initiate shoulder strengthening with light dumbbells
 - Knee
 - Gradually resume loading exercises if no swelling/pain
 - Week 8-9
 - Exercises
 - Continue above and progress as tolerated
 - Continue with Advanced Thrower’s Ten (for throwers)
 - Progress to 1-hand plyometrics: 90/90 ball throw, 0 ball throw
 - Side planks with shoulder ER strengthening

- Week 10-14
 - Criteria to progress to this stage:
 - Full, nonpainful elbow PROM, AROM
 - No tenderness
 - Appropriate strength of all muscle groups (at least 70% opposite side)
 - Exercises
 - Seated chest press machine
 - Seated row machine
 - Biceps/Triceps machine or cables
 - Interval hitting program (where appropriate)

- Phase III – Dynamic Strengthening Phase (Week 12+)
 - Goals
 - Improve strength/power/endurance
 - Improve neuromuscular control
 - Maintain full elbow ROM
 - Gradual return to functional activities
 - Criteria to progress to Phase III
 - Full elbow, wrist and shoulder ROM
 - No pain or tenderness
 - Satisfactory exam and muscle testing

 - Week 12-16
 - Exercises
 - Continue shoulder program
 - Initiate plyometric program
 - Initiate Interval Throwing Program Phase I
 - Goal to complete 90 ft throws 3 weeks after ITP, 120 ft throws within 8 weeks after ITP

 - Week 16-24
 - Exercises
 - Continue above exercises
 - Advance plyometrics
 - Initiate Interval Throwing Program Phase II when ready
 - Gradual return to competition when cleared by Dr. Hess and Physical Therapist

EXERCISES INCLUDED IN THE THROWERS TEN EXERCISE PROGRAM

- Diagonal-pattern D2 extension
- Diagonal-pattern D2 flexion
- Shoulder external rotation at 0° of abduction
- Shoulder internal rotation at 0° of abduction
- Shoulder abduction to 90°
- Shoulder scapular abduction, external rotation ("full cans")
- Sidelying shoulder external rotation
- Prone shoulder horizontal abduction
- Prone shoulder horizontal abduction (full external rotation, 100° of abduction)
- Prone rowing
- Prone rowing into external rotation
- Press-ups
- Push-ups
- Elbow flexion
- Elbow extension
- Wrist extension
- Wrist flexion
- Wrist supination
- Wrist pronation

All exercises are performed against resistance, with the goal to improve strength. Full description of the program is available.^{45,46}

EXERCISES INCLUDED IN THE ADVANCED THROWERS TEN EXERCISE PROGRAM

Elastic Tubing/Band Resistive Exercises

- Shoulder external rotation at 0° of abduction while seated on a stability ball*
- Shoulder internal rotation at 0° of abduction while seated on a stability ball*
- Shoulder extensions while seated on a stability ball[†]
- Lower trapezius isolation while seated on a stability ball[†]
- High row into shoulder external rotation while seated on a stability ball[†]
- Biceps curls/triceps extensions while seated on a stability ball[†]

Isotonic Dumbbell Resistive Exercises

- Full can while seated on a stability ball[†]
- Lateral raise to 90° while seated on a stability ball[†]
- Prone T's on stability ball[†]
- Prone Y's on stability ball[†]
- Prone row into external rotation on stability ball[†]
- Sidelying shoulder external rotation
- Wrist flexion/extension and supination/pronation

**Contralateral sustained hold performed during exercise.*

[†]*Exercises are performed in 3 distinct continuous movements per exercise: bilateral active exercise, alternating reciprocal movement, and a sustained contralateral hold.*

Ten to 15 repetitions are performed for each movement successively, without rest, to complete 1 set. The goal is the ability to perform 2 full cycles of the entire program without pain, using sound technique and no substitution. Full description of the program is available.⁵²