

UVA HAND CENTER - THERAPY

ANDREW'S PROTOCOL POST-OPERATIVE REHABILITATION PROTOCOL FOLLOWING ULNAR COLLATERAL LIGAMENT RECONSTRUCTION USING AUTOGENOUS PALMARIS LONGUS GRAFT

1. IMMEDIATE POST-OPERATIVE PHASE (0-3 WEEKS)

Goals:

- Protect healing tissue
- Decrease pain/inflammation
- Retard muscular atrophy
- Protect graft site-allow healing

WEEK 1

Brace: Posterior splint with elbow at 90° flexion

Compression: Elbow Compression dressing (first 2-3 days)
Wrist (graft site) compression dressing 7-10 days as needed

Cryotherapy: To elbow joint and graft site at the wrist

Range of Motion: Wrist AROM (flexion & extension) immediately postoperatively

Exercises:

- Gripping exercises
- Wrist ROM
- Supination/Pronation
- Shoulder isometrics (no shoulder internal rotation)
- Biceps isometrics

POST-OPERATIVE WEEK 2

Brace: Elbow ROM 30°-100°

Cryotherapy: Continue ice to elbow joint and graft site

Exercises:

- Continue all exercises listed above
- Elbow ROM in brace (-30° to 100°)
- Initiate isometric elbow extension
- Initiate wrist isometrics
- Continue wrist ROM exercises
- Initiate light scar mobilization over the distal graft incision

UVA HAND CENTER - THERAPY

POST-OPERATIVE WEEK 3

Brace: Elbow ROM 15°-110°
(Gradually increase ROM by 5° extension and 10° flexion per week after this point)

- Exercises:**
- Continue all exercises listed above
 - Elbow ROM in brace
 - Initiate light wrist flexion stretching
 - Initiate AROM shoulder
 - Full can
 - Lateral raises
 - ER/IR tubing
 - Continue wrist ROM exercises
 - Initiate light scar mobilization over the distal graft incision

PHASE II. INTERMEDIATE PHASE (WEEKS 4–8)

Goals:

- gradual increase in range of motion
- promote healing of repaired tissue
- regain and improve muscular strength

POST-OPERATIVE WEEK 4

Brace: Elbow ROM 10°-120°

- Exercises:**
- Begin light resistance exercises for arm (1 lb):
 - wrist curls and wrist extension
 - pronation/supination
 - Elbow extension/flexion.
 - Progress shoulder program, emphasizing rotator cuff and scapular strengthening (avoid ER until week 6)
 - Initiate shoulder strengthening with light dumbbells

POST-OPERATIVE WEEK 5

Brace: Elbow ROM 5°-130°

- Exercises:**
- Continue all exercises and progress all shoulder and UE exercises (progress 1# weight)

UVA HAND CENTER - THERAPY

POST-OPERATIVE WEEK 6

Brace: Elbow ROM 0°-145° (without brace, or full AROM)

Exercises:

- Initiate Thrower's Ten Program
- Progress elbow strengthening exercises
- Initiate shoulder external rotation strengthening
- Progress shoulder program

POST-OPERATIVE WEEK 7

Exercises:

- Progress Thrower's Ten Program (progress weights)
- Initiate PNF diagonal patterns (light)

ADVANCED STRENGTHENING PHASE (8-14 WEEKS)

Goals:

- increase strength, power, endurance
- maintain full elbow ROM
- gradually initiate sporting activities

POST-OPERATIVE WEEK 8

Exercises:

- Initiate eccentric elbow flexion/extension
- Continue isotonic program; forearm and wrist
- Continue shoulder program—thrower's ten program
- Manual resistance, diagonal patterns
- Initiate plyometric exercise program
 - (2 hand plyos close to body)
 - Chest pass
 - Side throw close to body

POST-OPERATIVE WEEK 10

Exercises:

- Continue all exercises listed above
- Progress plyometrics to 2 hand drills away from the body
 - Side to side throws
 - Soccer throws
 - Side throws

UVA HAND CENTER - THERAPY

POST-OPERATIVE WEEK 12-14

Exercises:

- Continue all exercises
- Initiate isotonic machines strengthening exercises if desired
 - Bench press (seated)
 - Lat pull down
- Initiate golf, swimming
- Initiate interval hitting program

RETURN TO ACTIVITY PHASE (14-32 WEEKS)

Goals:

- Continue to increase strength, power and endurance of upper extremity musculature
- Gradual return to sports activities

POST-OPERATIVE WEEK 14

Exercises:

- Continue strengthening program
- Emphasis on elbow and wrist strength and flexibility exercises
- Maintain full elbow ROM
- Initiate one hand plyometric throwing (stationary throws)
- Initiate one hand wall dribble
- Initiate one hand baseball throws into wall

POST-OPERATIVE WEEK 16

Exercises:

- Initiate Interval Throwing Program (Phase I) [long toss program]
- Continue Thrower's Ten program and plyos
- Continue to stretch before and after throwing

POST-OPERATIVE WEEKS 22-24

Exercises:

- Progress to Phase II throwing (once successfully completed Phase I)

POST-OPERATIVE WEEK 30-32

Exercises:

- Gradually progress to competitive throwing and sports

UVA HAND CENTER - THERAPY

Interval Throwing Program for Baseball Players: Phase I

45' Phase	60' Phase	90' Phase	120' Phase
Step 1: A) Warm-up Throwing B) 45' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 45' (25 Throws) Step 2: A) Warm-up Throwing B) 45' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 45' (25 Throws) F) Rest 5-10 min. G) Warm-up Throwing H) 45' (25 Throws)	Step 3: A) Warm-up Throwing B) 60' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 60' (25 Throws) Step 4: A) Warm-up Throwing B) 60' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 60' (25 Throws) F) Rest 5-10 min. G) Warm-up Throwing H) 60' (25 Throws)	Step 5: A) Warm-up Throwing B) 90' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 90' (25 Throws) Step 6: A) Warm-up Throwing B) 90' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 90' (25 Throws) F) Rest 5-10 min. G) Warm-up Throwing H) 90' (25 Throws)	Step 7: A) Warm-up Throwing B) 120' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 120' (25 Throws) Step 8: A) Warm-up Throwing B) 120' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 120' (25 Throws) F) Rest 5-10 min. G) Warm-up Throwing H) 120' (25 Throws)
150' Phase Step 9: A) Warm-up Throwing B) 150' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 150' (25 Throws) Step 10: A) Warm-up Throwing B) 150' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 150' (25 Throws) F) Rest 5-10 min. G) Warm-up Throwing H) 150' (25 Throws)	180' Phase Step 11: A) Warm-up Throwing B) 180' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 180' (25 Throws) Step 12: A) Warm-up Throwing B) 180' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 180' (25 Throws) F) Rest 5-10 min. G) Warm-up Throwing H) 180' (25 Throws)	Step 13: A) Warm-up Throwing B) 180' (25 Throws) C) Rest 5-10 min. D) Warm-up Throwing E) 180' (25 Throws) F) Rest 5-10 min. G) Warm-up Throwing H) 180' (20 Throws) I) Rest 5-10 min. J) Warm-up Throwing K) 15 throws progressing from 120' → 90' Step 14: Return to respective position or progress to step 14 below.	All throws should be on an arc with a crow-hop Warm-up throws consist of 10-20 throws at approximately 30 feet Throwing Program should be performed every other day, 3 times per week unless otherwise specified by your physician or rehabilitation specialist. Perform each step _____ times before progressing to next step.
Flat Ground Throwing for Baseball Pitchers			
Step 14: A) Warm-up Throwing B) Throw 60 ft. (10-15 throws) C) Throw 90 ft. (10 throws) D) Throw 120 ft. (10 throws) E) Throw 60 ft. (flat ground) using pitching mechanics (20-30 throws)		Step 15: A) Warm-up Throwing B) Throw 60 ft. (10-15 throws) C) Throw 90 ft. (10 throws) D) Throw 120 ft. (10 throws) E) Throw 60 ft. (flat ground) using pitching mechanics (20-30 throws) F) Throw 60-90 ft. (10-15 throws) G) Throw 60 ft. (flat ground) using pitching mechanics (20 throws)	
Progress to Phase II – Throwing Off the Mound			

45 feet = 13.7 meters
 60 feet = 18.3 meters
 90 feet = 27.4 meters
 120 feet = 36.6 meters
 150 feet = 45.7 meters
 180 feet = 54.8 meters

UVA HAND CENTER - THERAPY

Interval Throwing Program: Phase II – Throwing Off the Mound

STAGE ONE: FASTBALLS ONLY

- Step 1: Interval Throwing
15 Throws off mound 50%*
- Step 2: Interval Throwing
30 Throws off mound 50%
- Step 3: Interval Throwing
45 Throws off mound 50%
- Step 4: Interval Throwing
60 Throws off mound 50%
- Step 5: Interval Throwing
70 Throws off mound 50%
- Step 6: 45 Throws off mound 50%
30 Throws off mound 75%
- Step 7: 30 Throws off mound 50%
45 Throws off mound 75%
- Step 8: 10 Throws off mound 50%
65 Throws off mound 75%

ALL THROWING OFF THE MOUND SHOULD BE DONE IN THE PRESENCE OF YOUR PITCHING COACH OR SPORT BIOMECHANIST TO STRESS PROPER THROWING MECHANICS

(Use speed gun to aid in effort control)

Use Interval Throwing 120ft (36.6m) Phase as warm-up

STAGE TWO: FASTBALLS ONLY

- Step 9: 60 Throws off mound 75%
15 Throws in Batting Practice
- Step 10: 50-60 Throws off mound 75%
30 Throws in Batting Practice
- Step 11: 45-50 Throws off mound 75%
45 Throws in Batting Practice

STAGE THREE

- Step 12: 30 Throws off mound 75% warm-up
15 Throws off mound 50% BEGIN BREAKING BALLS
45-60 Throws in Batting Practice (fastball only)
- Step 13: 30 Throws off mound 75%
30 Breaking Balls 75%
30 Throws in Batting Practice
- Step 14: 30 throws off mound 75%
60-90 Throws in Batting Practice (Gradually increase breaking balls)
- Step 15: SIMULATED GAME: PROGRESSING BY 15 THROWS PER WORKOUT (Pitch Count)

* Percentage effort