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Ulnar Collateral Ligament Reconstruction

Please follow the protocol along with the instructions listed on the patient's referral

This protocol is for a repair of the ulnar collateral ligament (Tommy John Surgery) using palmaris longus tendon graft. Patients will begin physical therapy after their first post-operative visit with Dr. Green. Ice should be used throughout therapy for the elbow and graft site at the wrist.

Please contact Dr. Andrew Green's office (401) 457-1533 or the University Orthopedics Physical Therapy Department at (401) 443-5000 if there are any questions.

Immediate Postoperative Phase

Goals:

- Protect Graft
- Protect healing tissue
- Decrease pain and inflammation
- Retard muscle atrophy

Week 1

- Posterior splint at 90 degrees flexion
- Wrist AROM flex/ext
- Gripping exercises
- Ice to elbow and graft site at wrist
- Deltoid and periscapular isometrics

Week 2

- Brace to be worn at all times for the first 6 weeks set at 30-100 degrees
- Progress ROM: 5 degrees of extension/10 degrees of flexion per week
- Brace ROM 25-100
- Exercises: Continue as above
 - Continue wrist ROM exercises
 - Elbow extension isometrics
- May initiate light scar mobilization over graft site at the wrist
- Continue use of ice

Week 3:

- Elbow ROM: 15-115 degrees in brace
- Continue as above
- AROM wrist and elbow (no resistance)
- Light wrist flexion stretching
- AROM Shoulder:

Andrew Green, MD
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- IR/ER
- Lateral raises
- Light scapula strengthening
- May ride stationary bike

Intermediate Phase (Week 4-7)

Goals:

- Gradual increase to full elbow ROM
- Promote healing of repaired tissue
- Regain and improve muscular strength
- Restore full function of graft site

Week 4:

- Brace: ROM 0-120
- Begin light resistance (1#) for:
 - Wrist Flexion/extension/supination/pronation
 - Elbow flexion/extension
- Progress rotator cuff and scapula strengthening except for external rotation
- Initiate shoulder strengthening with light dumbbells

Week 5:

- ROM 0-135 degrees
- Continue as above progressing all shoulder and UE exercises

Week 6:

- AROM 0-145 without brace or full ROM
- Discontinue brace at the end of week 6
- Progress elbow strengthening exercises
- May begin external rotation strengthening
- Initiate Thrower's Ten Program:
 - Diagonal Pattern (D2) Extension
 - Diagonal Pattern (D2) Flexion
 - ER/IR at 0 degrees Abduction
 - ER/IR at 90 degrees Abduction
 - Abduction to 90 degrees
 - Scaption ER
 - Prone HADB Neutral
 - Prone HADB (Full ER/100 degrees Abduction)
 - Prone Row
 - Press ups
 - Pushups
 - Elbow Flexion/Extension
 - Supination/Pronation
 - Wrist Flexion/Extension

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Week 7:

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

ADVANCED STRENGTHENING PHASE (Week 8-14)

Goals:

- Increase strength, power and endurance
- Maintain full elbow ROM
- Gradually initiate sporting activities

Week 8:

- Continue progressive strengthening for wrist and forearm
- Continue Thrower's Ten program
- Initiate elbow eccentric strengthening for flexion/extension
- Manual resistance for diagonal patterns
- Initiate light plyometrics 2 hands close to the body
 - Chest pass
 - Side throws close to the body

Week 10:

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

Week 12-14:

- Continue all exercises
- Begin advanced lifting using machines if desired
 - Bench press (Seated)
 - Lat pull downs
- May begin golf, swimming
- Initiate interval hitting program

RETURN TO ACTIVITY PHASE (Week 14-32)

Goals:

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

Week 14:

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

Week 16:

- Initiate interval throwing program (Phase 1)
- Continue Thrower's Ten Program and plyometrics
- Continue to stretch before and after throwing

Week 22-24: Progress to Phase 2 throwing (once successfully completed Phase 1)

Weeks 30-32: Gradually progress to competitive throwing/sports

RETURN TO SPORT AND INTERVAL THROWING PROGRAM

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Phase 1

- Lob toss program is initiated at week 16 at distances no greater than 45 feet.
- Throwing activity is performed on an alternate day schedule with stretching, cardiovascular exercise, and core exercise performed on rest days.
- Proper warm up is essential prior to beginning any throwing program.
- Isotonic shoulder exercises (Throwers 10) should be performed for 10 repetitions prior to throwing.
- An additional two sets of the isotonic strengthening program should be performed following successful completion of throwing.
- Phase 1 of the interval-throwing program will follow with progressions to 120 feet using a crow hop.
- Throwing on a line (flat ground) begins after successful completion of pain free throwing at 120 feet.

Phase 2

- Mound progressions begin 4-6 weeks following the initiation of phase 1 depending upon patient symptoms.
- Mound progressions usually require 8-10 weeks to reestablish proper mechanics, confidence, and ball velocity.
- Competitive throwing will not commence until 9-12 months postoperatively.

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3 to 4 months:	<u># of THROWS</u>	<u>DISTANCE (ft)</u>
	20	20 (warm-up phase)
	25 - 40	30 - 40
	10	20 (cool down phase)

4 - 5 months: • Continue the Throwing Program by tossing the ball with an easy wind-up on alternate days

<u># of THROWS</u>	<u>DISTANCE (ft)</u>
10	20 (warm-up)
10	30 - 40
30 - 40	50
10	20 - 30 (cool down)

5 - 6 months: • Continue increasing the throwing distance to a maximum of 60 feet.
 • Continue tossing the ball with an occasional throw at no more than half speed

<u># of THROWS</u>	<u>DISTANCE (ft)</u>
10	30 (warm up)
10	40 - 45
30 - 40	60 - 70
10	30 (cool down)

6 to 7 months: • During this step gradually increase the distance to 150 feet maximum.

Phase I:	<u># of THROWS</u>	<u>DISTANCE (ft)</u>
	10	40 (warm up)
	10	50 - 60
	15 - 20	70 - 80
	10	50 - 60
	10	40 (cool down)

Phase II:	<u># of THROWS</u>	<u>DISTANCE (ft)</u>
	10	40 (warm up)
	10	50 - 60
	20 - 30	80 - 90
	20	50 - 60
	10	40 (cool down)

Phase III:	<u># of THROWS</u>	<u>DISTANCE (ft)</u>
	10	40 (warm up)
	10	60
	15 - 20	100 - 110

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20	60
10	40 (cool down)

Phase IV:	<u># of THROWS</u>	<u>DISTANCE (ft)</u>
	10	40 (warm up)
	10	60
	15 - 20	120 - 150
	20	60
	10	40 (cool down)

7 to 8 months:

- Progress to throwing off the mound at 1/2 to 3/4 speed. Try to use proper body mechanics, especially when throwing off the mound
- Stay on top of the ball.
- Keep the elbow up.
- Throw over the top.
- Follow through with the arm and trunk.

Phase I:	<u># OF THROWS</u>	<u>DISTANCE (ft)</u>
	10	60 (warm up)
	10	120 - 150 (lobbing)
	30	45 (off the mound)
	10	60 (off the mound)
	10	40 (cool down)

Phase II:	<u># OF THROWS</u>	<u>DISTANCE (ft)</u>
	10	50 (warm up)
	10	120 - 150 (lobbing)
	20	45 (off the mound)
	20	60 (off the mound)
	10	40 (cool down)

Phase III:	<u># OF THROWS</u>	<u>DISTANCE (ft)</u>
	10	50 (warm up)
	10	60
	10	120 - 150 (lobbing)
	10	45 (off the mound)
	30	60 (off the mound)
	10	40 (cool down)

Phase IV:	<u># OF THROWS</u>	<u>DISTANCE (ft)</u>
	10	50 (warm up)
	10	120 - 150 (lobbing)
	10	45 (off the mound)
	40 - 50	60 (off the mound)
	10	40 (cool down)

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At this time, if the pitcher has successfully completed the above phase without pain or discomfort and is throwing approximately 3/4 speed, the pitching coach and trainer may allow the pitcher to proceed to the next step of "Up/Down Bullpens". Up/Down Bullpens is used to simulate a game situation. The pitcher rests in between a series of pitches to reproduce the rest period in between innings.

Up/Down Bullpens: (1/2 - 3/4 speed)

Day 1:	<u># OF THROWS</u>	<u>DISTANCE (ft)</u>
	10 warm-up	120 - 150 (lobbing)
	10 warm-up	60 (off the mound)
	40 pitches	60 (off the mound)
	REST 10 MINUTES	
	20 pitches	60 (off the mound)

Day 2: OFF

Day 3:	<u># OF THROWS</u>	<u>DISTANCE (ft)</u>
	10 warm-up	120 - 150 (lobbing)
	10 warm-up	60 (off the mound)
	30 pitches	60 (off the mound)
	REST 10 MINUTES	
	10 warm-up	60 (off the mound)
	20 pitches	60 (off the mound)
	REST 10 MINUTES	
	10 warm-up	60 (off the mound)
	20 pitches	60 (off the mound)

Day 4: OFF

Day 5:	<u># OF THROWS</u>	<u>DISTANCE (ft)</u>
	10 warm-up	120 - 150 (lobbing)
	10 warm-up	60 (off the mound)
	30 pitches	60 (off the mound)
	REST 8 MINUTES	
	20 pitches	60 (off the mound)
	REST 8 MINUTES	
	20 pitches	60 (off the mound)
	REST 8 MINUTES	
	20 pitches	60 (off the mound)

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At this point, the pitcher is ready to begin a normal routine, from throwing batting practice to pitching in the bullpen. This program should be adjusted as needed by your physician, athletic trainer or physical therapist.