Nathan E Marshall MD
Rochester Hills, MI
(248) 650-2400
Shelby Township, MI
(586) 254-2777
NateMarshallMD.com

Tommy John/Ulnar Collateral Ligament Reconstruction
Physical Therapy Protocol

Introduction
The ulnar collateral ligament reconstruction is a ligament reconstruction procedure. No muscles are transected during this process which allows for a faster recovery time since there is less surgical trauma. Postoperatively, the body requires time to accept the transfer and establish adequate blood supply in the new tissue. The focus of this rehabilitation program is to provide gradually increasing stresses on the transferred material to allow the tendon to adapt to the forces the ulnar collateral ligament would typically withstand. According to Wolff's Law, the strength of the tissues matrix is directly proportional to the stresses place upon them during their development.

Approximately one year is needed for the transferred tissues to assume their new functions completely. The patient tends to protect and compensate for their limited ability, which promotes dysfunction of the upper extremity as a whole; therefore, it is important to address the function of the should girdle (i.e., scapulothoracic, glenohumeral, and acromioclavicaluar joints) and core, along with the return of full elbow function (i.e., range of motion, strength and endurance).

In general, avoid any valgus stress during the rehabilitation period until actual pitching starts. Many athletes wish to resume playing golf during their rehabilitation period but valgus forces are not permitted. Putting is allowed, as is chipping, as advised by your physician. No drives are allowed for six months. Before this time, hitting a divot may pull out the repair altogether.

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0 to 14 days:

- Splint is worn for one week.
- No valgus stress to the elbow.
- Full active forearm pronation and supination range of motion.
- Full active wrist radial and ulnar deviation range of motion. Gentle stretching of wrist and fingers is okay.
- Active and active assistive wrist flexion and extension range of motion exercises.
- Full active shoulder range of motion – flexion, abduction, internal & external rotation.

2 to 6 weeks:

- Discontinue splint in one week. Elbow brace worn at all times except hygiene.
- Two weeks post-operation, begin a Total Body Conditioning Program after incision is closed (starting earlier, you run the risk of getting perspiration in or on the wound, increasing the risk of infection).
- Elbow Brace: 0-100 degree arch of motion
- Active elbow ROM in brace
- Shoulder, scapula, core strengthening

- Scapula isometrics
- Pain-free isometrics in brace (deltoid, wrist flex/ext, elbow flex/ext)
- Manual scapula stabilization exercises with proximal resistance

6 to 12 weeks:

- Discontinue elbow brace at 6 weeks, avoid resistive valgus stress
- Restore full elbow ROM (Be conscious of pre-operative ROM as may be different from contralateral elbow)
- Isotonics for scapula, shoulder, elbow, forearm, wrist
- Begin IR/ER strength @ 8 weeks
- Begin forearm pronation/supination strength @ 8 weeeks
- Neuromuscular drills
- PNF patters when strength adequate
- Eccentric training when strength adequate

12 to 16 weeks:

- Advance IR/ER to 90/90 position
- Full upper extremity flexibility program
- Neuromuscular drills
- Plyometric program
- Continue endurance training
- Address truck and lower extremities
- **Return to throwing program begins at about 4-6 months, beginning with short toss.**

***There should be no medial elbow pain during the return to throwing period. Please notify the doctor if pain at medial elbow, other than soreness during any period of throwing program. Stop throwing program immediately if significant pain experienced.**

NOTE: The Throwing Program is performed 3 - 4 times per week. Apply ice after each throwing session to help decrease the inflammatory response to microtrauma.

4 to 5 months:

# of Throws	Distance (ft)
20	20 (warm-up phase)
25-40	30-40
10	20 (cool down phase)

5 to 6 months:

- Continue the Throwing Program by tossing the ball with an easy wind-up on alternate days.

# of Throws	Distance (ft)
10	20 (warm-up)
10	30-40
30-40	50
10	20-30 (cool down)

6 to 7 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.

# of Throws	Distance (ft)
10	30 (warm up)
10	40-45
30-40	60-70
10	30 (cool down)

7 to 8 months:

- Gradually increase to 150 feet

Phase 1	# of Throws	Distance (ft)
	10	40 (warm-up)
	10	50-60
	15-20	70-80
	10	50-60
	10	40 (cool down)

Phase 2	# of Throws	Distance (ft)
	10	40 (warm-up)
	10	50-60
	20-130	80-90
	20	50-60
	10	40 (cool down)

Phase 3	# of Throws	Distance (ft)
	10	40 (warm-up)
	10	60
	15-20	100-110
	20	60
	10	40 (cool down)

Phase 4	# of Throws	Distance (ft)
	10	40 (warm-up)
	10	60
	15-20	120-150
	20	60

8 to 9 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 1	# of Throws	Distance (ft)
	10	60 (warm-up)
	10	120-150 (lobbing)
	30	45 (off the mound)
	10	60 (off the mound)
	10	40 (cool down)

Phase 2	# of Throws	Distance (ft)
	10	50 (warm-up)
	10	120-150 (lobbing)
	20	45 (off the mound)
	20	60 (off the mound)
	10	40 (cool down)

Phase 3	# of Throws	Distance (ft)
	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 4	# of Throws	Distance (ft)
	10	50 (warm-up)
	10	120-150 (lobbing)
	10	45 (off the mound)
	40-50	60 (off the mound)
	10	40 (cool down)

9 to 10 months:

- At this time, if the 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.

Day 1	# of Throws	Distance (ft)
	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	# of Throws	Distance(ft)
	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	# of Throws	Distance ft)
	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)

10 to 12 months:

- 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.

Advancing to full return to Pitching:

Typically 10-12 months, ideally 12-14 months

In order for full return to pitching, pitcher must demonstrate proper throwing mechanics, which is obtained with full function ROM, proper conditioning/endurance, strong shoulder and scapular musculature and stability of the kinetic chain with strong lower extremity and core musculature