

**Dr. Ryan Nelson**  
861 Health Park Blvd.  
Grand Blanc, MI 48439  
(810) 953-0500  
[www.DrRNelson.com](http://www.DrRNelson.com)  
[ryan.Nelson@DrRNelson.com](mailto:ryan.Nelson@DrRNelson.com)

## **Biceps tenodesis**

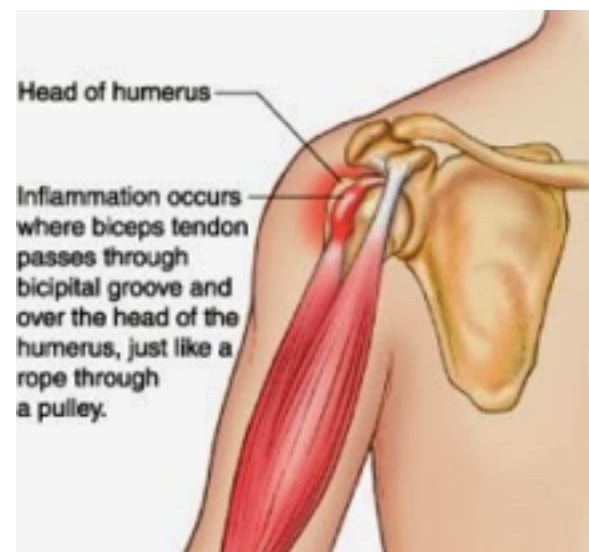
The shoulder has two primary joints. One part of the shoulder blade, called the glenoid fossa forms a flat, shallow surface. This is coupled with the humerus (shaped like a golf ball) to make up the joint. The glenoid labrum is a "ring" of cartilage that turns the flat surface of the glenoid into a slightly deeper socket, which is similar to resting a golf ball on a golf tee instead of a table top, providing more shoulder stability. Another part of the scapula, called the acromium, articulates with the clavicle (collar bone) to make the acromioclavicular (AC) joint.

The rotator cuff is a group of four muscles: the supraspinatus, infraspinatus, teres minor, and subscapularis. The rotator cuff tendons attach around the humeral head (ball) and connects the humerus to the scapula.

The long head of the biceps originates from the top of the glenoid fossa and labrum (top of the golf tee). It then runs through a groove in the humerus (upper arm bone) to join the short head of the biceps and inserts on a bone in the forearm. Because of its position, the long head of the biceps is also considered to be a secondary stabilizer of the shoulder joint.

The long head of the biceps is at risk of injury and degenerative changes due to its proximity to the rotator cuff and the acromium. Since the long head of the biceps can act as a secondary stabilizer of the shoulder, it is also subject to injury during high speed overhead movements; repetitive overhead movements; or forceful shoulder activities when the elbow is straight. Specific injuries may include inflammation and irritation of the bicep tendon itself; a problem with the bicep tendon in conjunction with one of the rotator cuff tendons; or detachment of part of the tendon from the attachment point (SLAP tear). Bicep tendon degeneration and/or tearing can cause significant shoulder discomfort and dysfunction.

A biceps tenodesis is a surgical procedure which may be performed for treatment of severe symptoms involving the biceps tendon, including inflammation or partial tears. It may be performed in isolation or as part of a larger shoulder surgery, including surgery involving the rotator cuff. During the biceps tenodesis, the normal attachment of the biceps tendon on the shoulder socket (glenoid fossa) is cut and reattachment of the tendon is made on the humerus (upper arm bone). This takes the pressure off the biceps attachment and places the attachment below the actual shoulder joint. The goal is to eliminate the shoulder pain coming from the bicep tendon.



**Dr. Ryan Nelson**  
861 Health Park Blvd.  
Grand Blanc, MI 48439  
(810) 953-0500  
[www.DrRNelson.com](http://www.DrRNelson.com)  
[ryan.Nelson@DrRNelson.com](mailto:ryan.Nelson@DrRNelson.com)

### **Biceps Tenodesis Protocol**

*The intent of this protocol is to provide the clinician with a guideline of the post-operative rehabilitation course of a patient that has undergone a Biceps Tenodesis for biceps dysfunction. It is no means intended to be a substitute for one's clinical decision making regarding the progression of a patient's post-operative course based on their physical exam/findings, individual progress, and/or the presence of post-operative complications. If a clinician requires assistance in the progression of a post-operative patient they should consult with the referring Surgeon.*

#### **Phase I – PROM Phase (starts approximately post op weeks 1- 3)**

##### **Goals:**

1. Minimize shoulder pain and inflammatory response
2. Achieve gradual restoration of passive range of motion (PROM)
3. Enhance/ensure adequate scapular function

##### **Precautions/Patient Education:**

- No active range of motion (AROM) of the elbow
- No excessive external rotation range of motion (ROM) / stretching. Stop when you feel the first end feel.
- Use of a sling to minimize activity of biceps
- Ace wrap upper forearm as needed for swelling control
- No lifting of objects with operative shoulder
- Keep incisions clean and dry
- No friction massage to the proximal biceps tendon / tenodesis site
- Patient education regarding limited use of upper extremity despite the potential lack of or minimal pain or other symptoms

##### **Activity:**

- Shoulder pendulum hang exercise
- PROM elbow flexion/extension and forearm supination/pronation
- AROM wrist/hand
- Begin shoulder PROM all planes to tolerance /do not force any painful motion
- Scapular retraction and clock exercises for scapula mobility progressed to scapular isometric exercises
- Ball squeezes
- Sleep with sling as needed supporting operative shoulder, place a towel under the elbow to prevent shoulder hyperextension
- Frequent cryotherapy for pain and inflammation
- Patient education regarding postural awareness, joint protection, positioning, hygiene, etc.
- May return to computer based work

##### **Milestones to progress to phase II:**

- Appropriate healing of the surgical incision
- Full PROM of shoulder and elbow
- Completion of phase I activities without pain or difficulty

**Dr. Ryan Nelson**  
861 Health Park Blvd.  
Grand Blanc, MI 48439  
(810) 953-0500  
[www.DrRNelson.com](http://www.DrRNelson.com)  
[ryan.Nelson@DrRNelson.com](mailto:ryan.Nelson@DrRNelson.com)

## **Phase II – Active Range of Motion Phase (starts approximately post op week 4)**

### Goals:

1. Minimize shoulder pain and inflammatory response
2. Achieve gradual restoration of AROM
3. Begin light waist level functional activities
4. Wean out of sling by the end of the 4 postoperative week
5. Return to light computer work

### Precautions:

- No lifting with affected upper extremity
- No friction massage to the proximal biceps tendon / tenodesis site

### Activity:

- Begin gentle scar massage and use of scar pad for anterior axillary incision
- Progress shoulder PROM to active assisted range of motion (AAROM) and AROM all planes to tolerance
- Lawn chair progression for shoulder
- Active elbow flexion/extension and forearm supination/pronation (No resistance)
- Glenohumeral, scapulothoracic, and trunk joint mobilizations as indicated (Grade I - IV) when ROM is significantly less than expected. Mobilizations should be done in directions of limited motion and only until adequate ROM is gained.
- Begin incorporating posterior capsular stretching as indicated
- Cross body adduction stretch
- Side lying internal rotation stretch (sleeper stretch)
- Continued Cryotherapy for pain and inflammation
- Continued patient education: posture, joint protection, positioning, hygiene, etc.

### Milestones to progress to phase III:

- Restore full AROM of shoulder and elbow
- Appropriate scapular posture at rest and dynamic scapular control with ROM and functional activities
- Completion of phase II activities without pain or difficulty

**Dr. Ryan Nelson**  
861 Health Park Blvd.  
Grand Blanc, MI 48439  
(810) 953-0500  
[www.DrRNelson.com](http://www.DrRNelson.com)  
[ryan.Nelson@DrRNelson.com](mailto:ryan.Nelson@DrRNelson.com)

### **Phase III - Strengthening Phase (starts approximately post op week 8-10)**

#### **Goals:**

- Normalize strength, endurance, neuromuscular control
- Return to chest level full functional activities

#### **Precautions:**

- Do not perform strengthening or functional activities in a given plane until the patient has near full ROM and strength in that plane of movement
- Patient education regarding a gradual increase to shoulder activities

#### **Activity:**

- Continue A/PROM of shoulder and elbow as needed/indicated
- Initiate biceps curls with light resistance, progress as tolerated
- Initiate resisted supination/pronation
- Begin rhythmic stabilization drills
- External rotation (ER) / Internal Rotation (IR) in the scapular plane
- Flexion/extension and abduction/adduction at various angles of elevation
- Initiate balanced strengthening program
  - o Initially in low dynamic positions
  - o Gain muscular endurance with high repetition of 30-50, low resistance 1-3 lbs)
  - o Exercises should be progressive in terms of muscle demand / intensity, shoulder elevation, and stress on the anterior joint capsule
  - o Nearly full elevation in the scapula plane should be achieved before beginning elevation in other planes
  - o All activities should be pain free and without compensatory/substitution patterns
  - o Exercises should consist of both open and closed chain activities
  - o No heavy lifting should be performed at this time
    - Initiate full can scapular plane raises with good mechanics
    - Initiate ER strengthening using exercise tubing at 30° of abduction (use towel roll)
    - Initiate sidelying ER with towel roll
    - Initiate manual resistance ER supine in scapular plane (light resistance)
    - Initiate prone rowing at 30/45/90 degrees of abduction to neutral arm position
    - Begin subscapularis strengthening to focus on both upper and lower segments
      - Push up plus (wall, counter, knees on the floor, floor)
      - Cross body diagonals with resistive tubing
      - IR resistive band (0, 45, 90 degrees of abduction)
      - Forward punch
    - Continued cryotherapy for pain and inflammation as needed

#### **Milestones to progress to phase IV:**

- Appropriate rotator cuff and scapular muscular performance for chest level activities
- Completion of phase III activities without pain or difficulty

**Dr. Ryan Nelson**  
861 Health Park Blvd.  
Grand Blanc, MI 48439  
(810) 953-0500  
[www.DrRNelson.com](http://www.DrRNelson.com)  
[ryan.Nelson@DrRNelson.com](mailto:ryan.Nelson@DrRNelson.com)

**Phase IV – Advanced Strengthening Phase (starts approximately post op week 10)**

**Goals:**

- Continue stretching and PROM as needed/indicated
- Maintain full non-painful AROM
- Return to full strenuous work activities
- Return to full recreational activities

**Precautions:**

- Avoid excessive anterior capsule stress
- With weight lifting, avoid military press and wide grip bench press.

**Activity:**

- Continue all exercises listed above
  - Progress isotonic strengthening if patient demonstrates no compensatory strategies, is not painful, and has no residual soreness
- Strengthening overhead if ROM and strength below 90 degree elevation is good
- Continue shoulder stretching and strengthening at least four times per week
- Progressive return to upper extremity weight lifting program emphasizing the larger, primary upper extremity muscles (deltoid, latissimus dorsi, pectoralis major)
  - Start with relatively light weight and high repetitions (15-25)
- May initiate pre injury level activities/ vigorous sports if appropriate / cleared by Dr. Nelson

**Milestones to return to overhead work and sport activities:**

- Clearance from MD
- No complaints of pain
- Adequate ROM, strength and endurance of rotator cuff and scapular musculature for task completion
- Compliance with continued home exercise program

**Dr. Ryan Nelson**  
 861 Health Park Blvd.  
 Grand Blanc, MI 48439  
 (810) 953-0500  
[www.DrRNelson.com](http://www.DrRNelson.com)  
[ryan.Nelson@DrRNelson.com](mailto:ryan.Nelson@DrRNelson.com)

<b>Dr. Nelson's Biceps tenodesis Rehabilitation Protocol</b>															
<b>Diagnosis:</b>															
<b>Procedure date:</b>	<b>S/P:</b>														
	<b>WEEK</b>										<b>MONTH</b>				
	1	2	3	4	5	6	7	8	9	10	3	4	5	6	
<b>PHASE 1 EXERCISES (continue sling)(week 1-3)</b>															
Pendulum	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
PROM elbow pronation/supination	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
AROM of wrist and hand	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Begin Shoulder PROM all planes with no pain	•	•	•	•	•	•									
Scapular retraction and clock exercises	•	•	•	•	•	•	•	•	•	•					
Ball Squeezes	•	•	•	•	•	•	•	•	•	•					
<b>PHASE 2 (weeks 4-8) Active motion phase</b>															
Progress shoulder PROM to AAROM and then AROM				•	•	•	•	•	•	•	•	•	•	•	
Lawn chair progression for shoulder				•	•	•	•	•	•	•	•	•	•	•	
Active Elbow flexion/extension Pronation/supination (No resistance)				•	•	•	•	•	•	•					
GH, Scapulothoracic, trunk joint mobilization PRN				•	•	•	•	•	•	•					
Begin incorporating Posterior capsular stretch (cross body adduction, sleeper stretch)				•	•	•	•	•	•	•					
<b>PHASE 3 (weeks 8-10) continue previous plus</b>															
Initiate Biceps curls with light resistance								•	•	•	•	•	•	•	
Initiate resisted supination/pronation								•	•	•	•	•	•	•	
Begin rhythmic stabilization drills (ER/IR in scap plane, Flex/Ext and ABD/ADD through elevation)								•	•	•	•	•	•	•	
Initiate balance strengthening program see above								•	•	•	•	•	•	•	
<b>PHASE 4 weeks 10 on</b>															
Continue all above										•	•	•	•	•	
Strengthen overhead if ROM and strength below 90 good										•	•	•	•	•	
Continue shoulder stretch and strength 4x week										•	•	•	•	•	
Progres return to upper extremity weight lifting program Focus (deltoid, lat, pec)										•	•	•	•	•	
Initiate plyometrics/interval sports program										•	•	•	•	•	
May initiate pre injury level activities with clearance by Dr. Nelson										•	•	•	•	•	
Return to play typically 3 months															
Call or email Dr. Nelson with any concern															
<b>Additional Instructions:</b>															