

# Hazel Dell Orthopedics and Sports Medicine

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## Biceps Tenodesis

1. Defined
  - a. Surgical procedure where the long head of the biceps is cut from its attachment on the labrum and is reattached to the humerus.
  - b. This procedure reduces tension on the labrum as well as allows for pathological tendon tissue to be removed.
2. Goals
  - a. Protect healing tissue
  - b. Control post-operative pain and swelling
  - c. Improve post-operative range of motion
  - d. Improve functional strength, stability, and neuromuscular control
3. Rehabilitation Principles
  - a. Be aware of compromised and/or repaired tissue
  - b. Healing tissue should never be overstressed but appropriate levels of stress are beneficial
    - i. Inflammatory phase days 1-3
    - ii. Tissue repair with proliferation phase days 3-20
    - iii. Scar tissue most responsive to remodeling 21-60 days but occurs from 1 to 8 weeks
    - iv. Final maturation taking as long as 360 days
  - c. Tissue reactivity of the shoulder and tissue healing will dictate the rehabilitation process. Reactivity is determined by the clinical exam
    - i. Level I Reactivity
      1. Resting pain, pain before end range.
      2. Aggressive stretching is contraindicated.
      3. Grade I-II mobilization for neurophysiological effect
    - ii. Level II Reactivity
      1. Pain onset occurs with end range resistance
      2. Grade III and IV mobilization appropriate per patient tolerance
    - iii. Level III Reactivity
      1. Engagement of capsular end feel with little or no pain.
      2. Pain occurs after resistance.
      3. Grade III and IV mobilization and sustained stretching is appropriate
  - d. Eliminate inflammation as the cause of pain and neuromuscular inhibition

- e. Ensure return of appropriate joint arthrokinematics
  - f. Apply techniques in loose packed unidirectional and progress to close packed and multidirectional based on tissue healing and patient response
  - g. Facilitate performance of complex skills with proprioceptive and kinesthetic techniques: Low to high, sagittal to frontal, bilateral to unilateral, stable to unstable, slow to fast, fixed to unfixed surface
  - h. Encourage life-long activity modification shoulder safe zone
  - i. Factors that affect the rehab process
    - i. Surgical approach
    - ii. Tissue quality
    - iii. Presence of concomitant pathology
    - iv. Age of patient
    - v. Comorbidities
    - vi. Pre and intra-operative range of motion
    - vii. Pain and sensitivity levels
    - viii. Cognitive abilities
4. Post op functional guidelines
- a. Dependant on functional range and strength, and neuromuscular control
  - b. Drive
  - c. Work
  - d. Sport
5. Post op equipment guidelines
- a. Sling -2-4 weeks (patient dependant)

## 6. Rehabilitation

- a. Week 1-3; Protective ROM Phase
  - i. Precautions/Limits:
    1. No resisted elbow flexion
    2. No resisted supination
    3. Sling for comfort (wean from sling between 2 and 4 weeks)
  - ii. Rx/Clinical Expectations
    1. Maintain full elbow and shoulder ROM, passive and active assisted.
    2. Treat for inflammation, pain, swelling per tissue reactivity.
    3. Maintain wrist and forearm function as well as core scapular strength.
- b. Week 4-6; Strengthening Phase
  - i. Precaution/Limits
    1. Pain-free sub-maximal PREs
  - ii. Rx/Clinical Expectations
    1. Resisted elbow flexion training beginning with isometrics week 4 and progressing to isotonic and theraband week 6
    2. Work deltoid and rotator cuff couple.
- c. Week 7+; Function Phase
  - i. Precaution/Limits
    1. No heavy bicep work
  - ii. Rx
    1. Return functional strength
    2. closed chain and plyometric progression