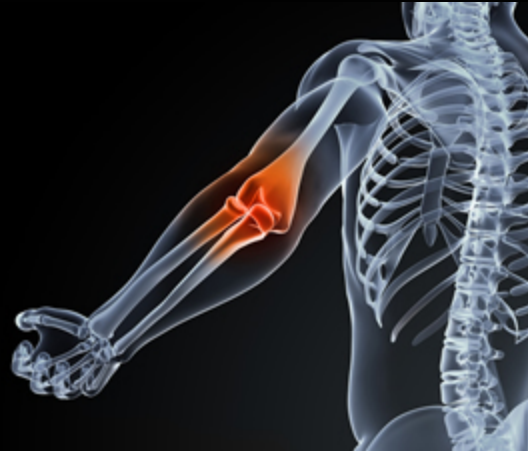


# Distal Biceps Tendon Repair



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# Disclosures

- I have no disclosures relevant to this topic.

# Outline

- Introduction & Epidemiology
- Anatomy
- Clinical Evaluation
- Imaging
- Management

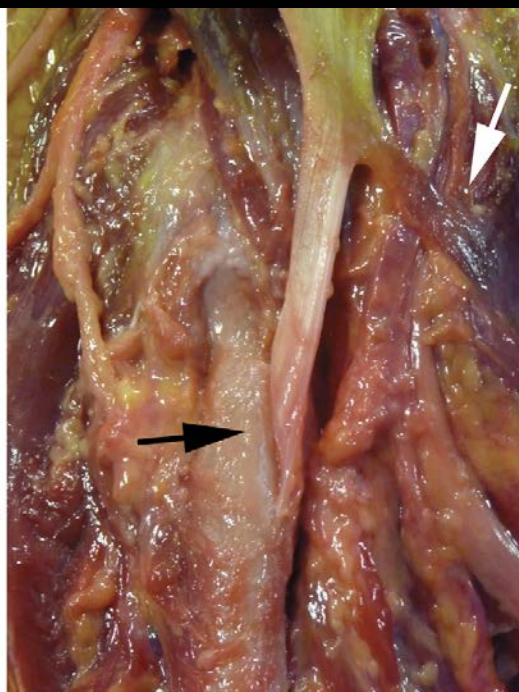
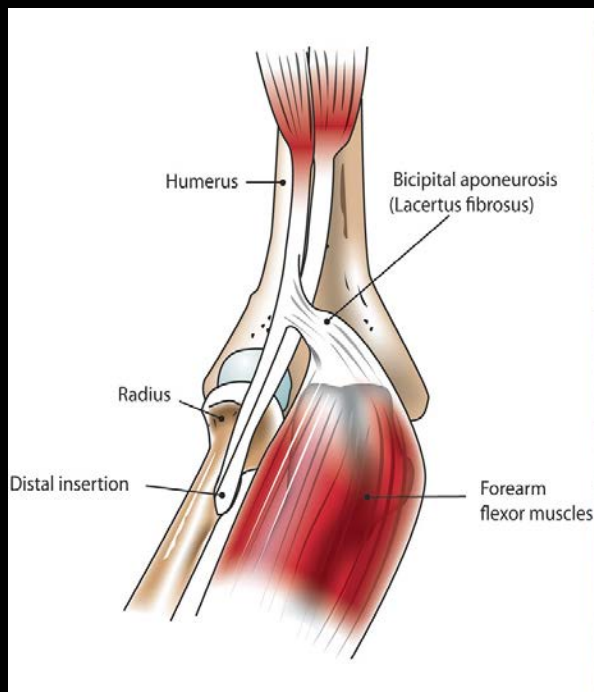
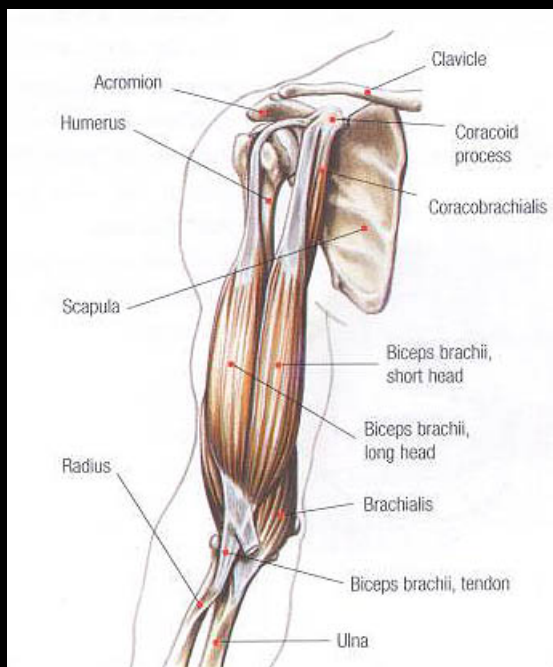


# Introduction

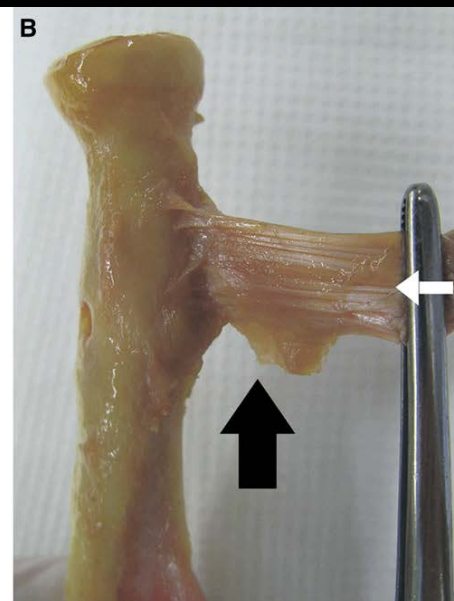
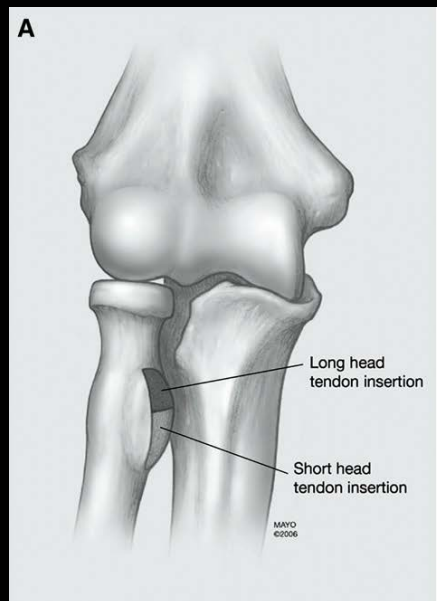
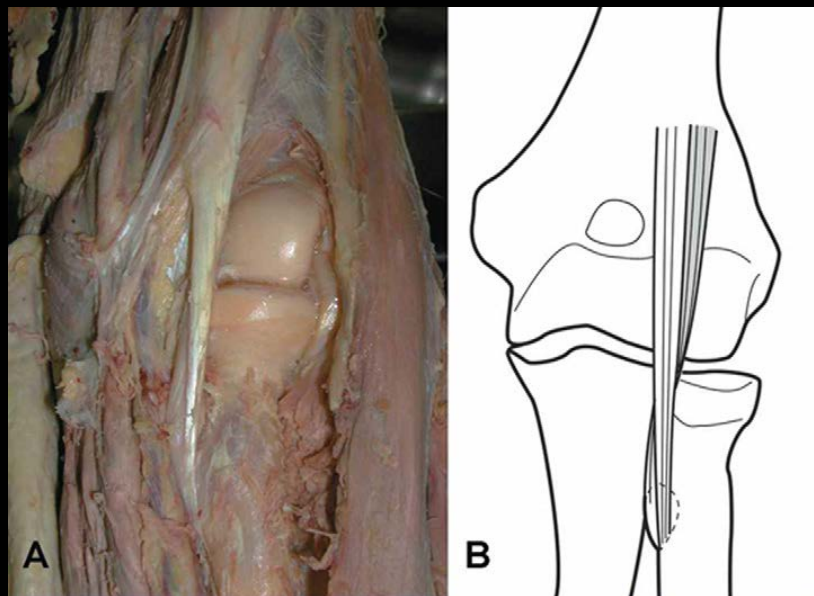
- Rare injury
- Incidence of 1.2/100,000 pts per yr
- Usually dominant arm of middle-age men
  - 30 – 60 yrs
  - 86% dominant arm
- Smoking increases risk

Safran et al. CORR 2002

# Anatomy

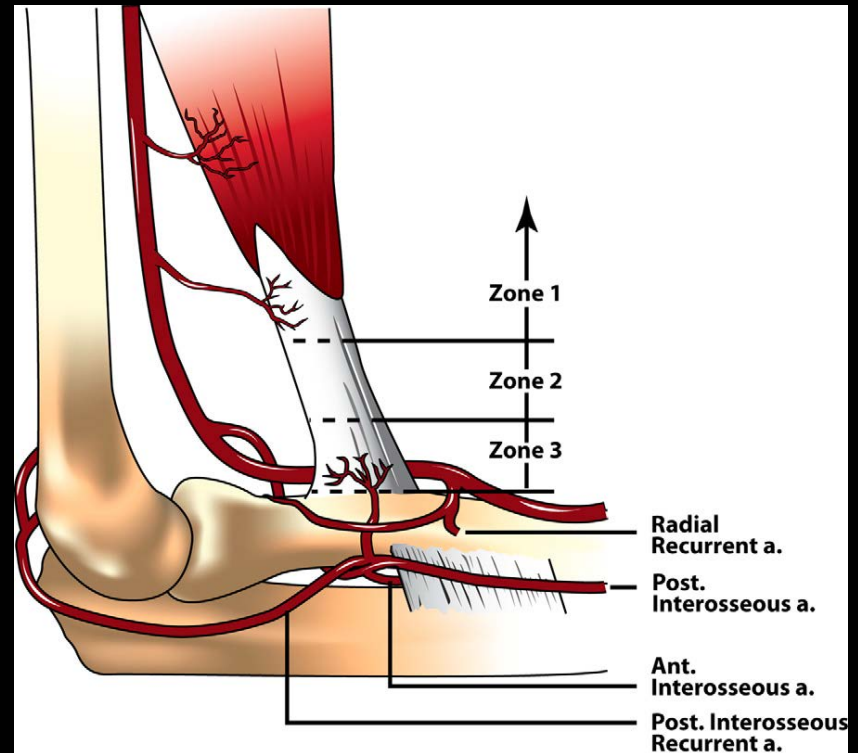


# Anatomy



# Anatomy

- Hypovascular zone that may predispose to rupture
- Musculocutaneous N.



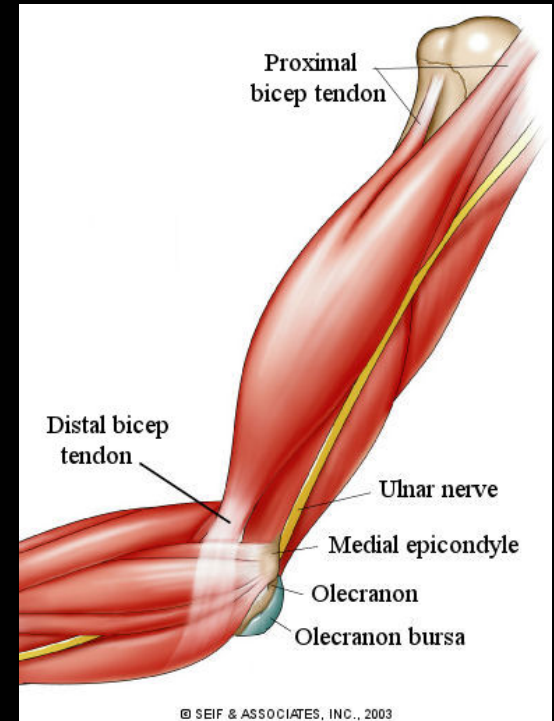
# Clinical History & Exam

- Typically ruptured during eccentric contraction
- Feel tearing sensation or pop
- Antecubital ecchymosis
- Obvious deformity w/ proximal retraction of the muscle



# Clinical History

- May have chronic pain
- May c/o chronic weakness
- Can still be missed
  - Lacertus fibrosus



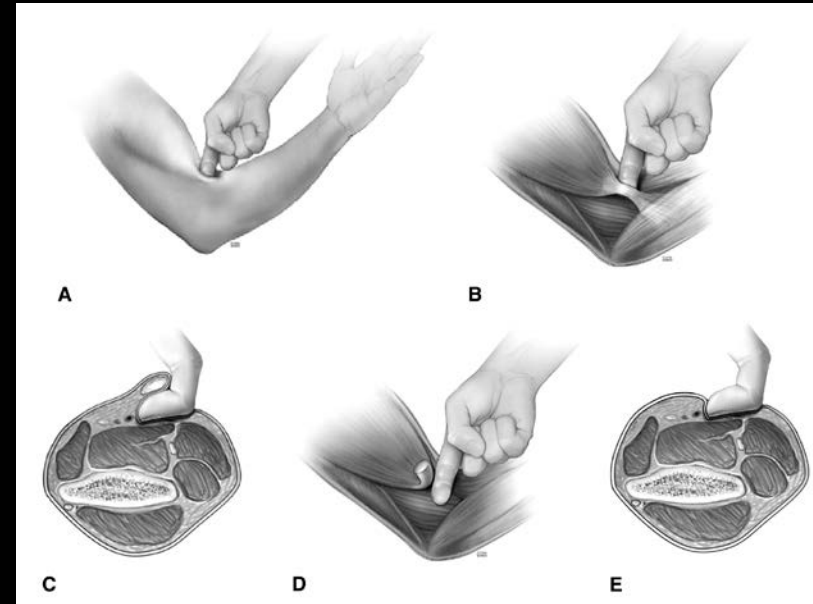
# Clinical Exam

- Biceps Squeeze Test
  - Squeeze relaxed biceps → forearm supination

Ruland et al. CORR 2005

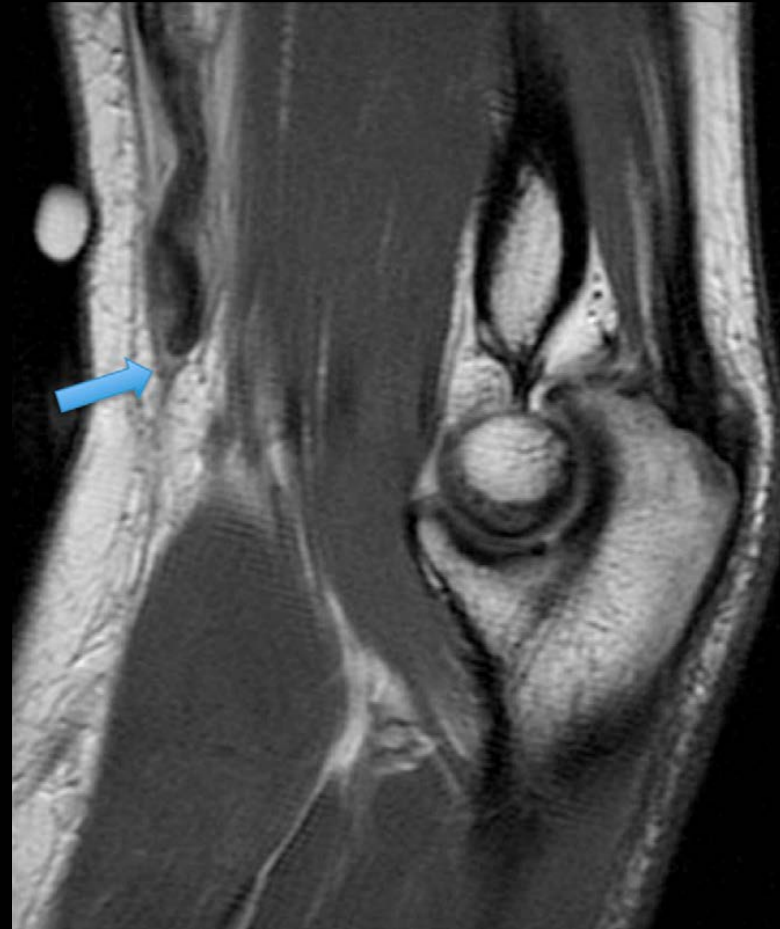
- Hook Test
  - Flex elbow 90° & hook finger around lateral biceps tendon
  - Compare to un-injured side

O'Driscoll et al. AJSM 2007



# Imaging

- Radiographs
  - rare tuberosity avulsion
- MRI
  - Flexed, abducted & supinated



# Non-operative Treatment

- Sedentary patients with low demands
- Patients not medically fit for surgery
- Temporary immobilization
- Pain control
- PT



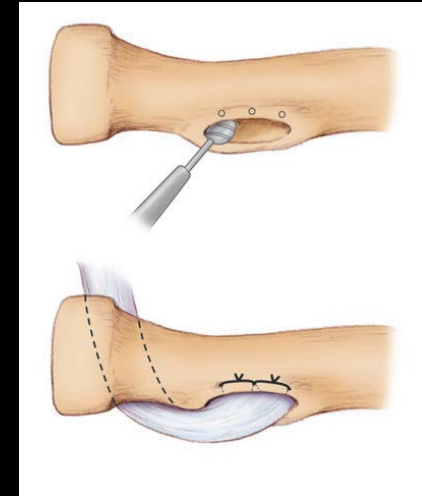
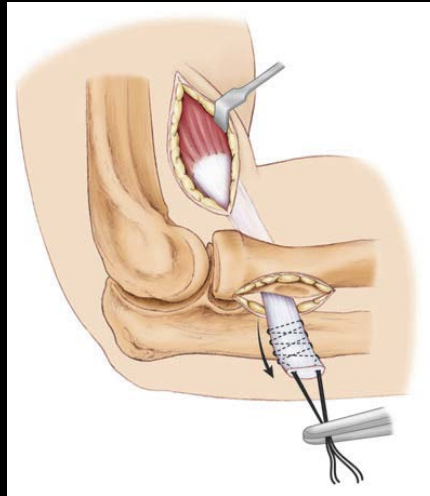
# Non-operative Treatment

- Outcomes
  - Decreased strength
    - Primarily in supination 60-74% of uninjured side
    - Less so flexion ~88% of uninjured side
  - Non-dominant injury better tolerated
  - No loss of motion
  - Most able to return to previous function (non-laborers)

Freeman et al. JBJS 2009

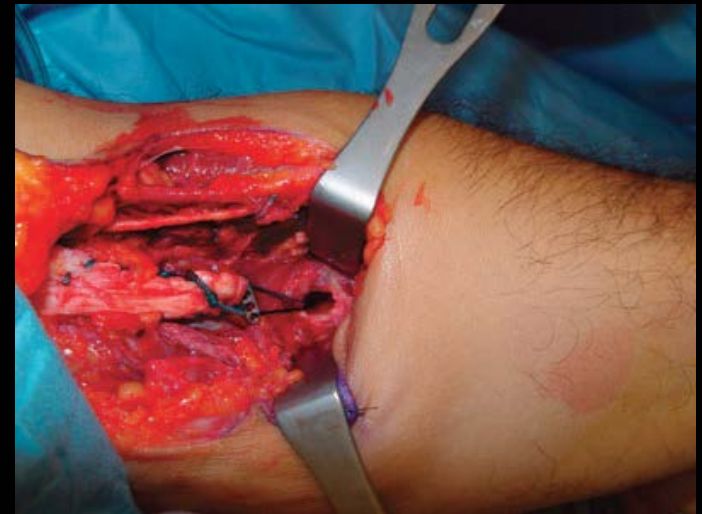
# Operative Treatment

- Two incision
  - Possible more anatomic repair
  - Risk of HO &/or synostosis
  - Still risk of nerve injury (LABCN, PIN)
  - Operative Pearls
    - Stay away from ulna
    - Muscle splitting approach
    - HO prophylaxis



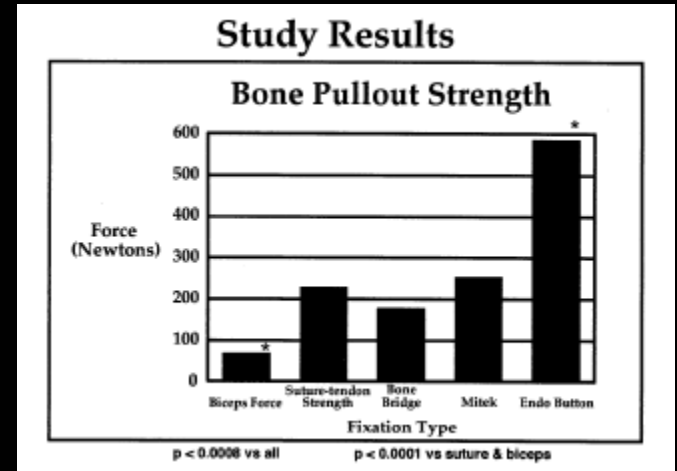
# Operative Treatment

- One incision
  - Typically better range of motion
  - Increased incidence of nerve injury (LABCN, PIN)
  - Still risk of HO
  - Operative Pearls
    - Protect LABCN & minimize lateral traction
    - If drilling across radius – do not aim postero-laterally (closer to PIN)



# Operative Treatment

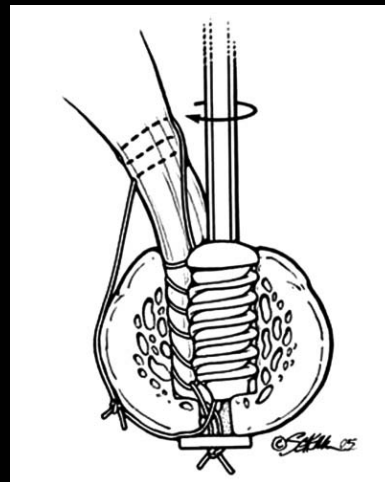
- Fixation methods
  - Transosseous bone tunnels
  - Suture anchors
  - Cortical button
  - Interference screws
  - Hybrid – cortical button & interference screw



Greenberg et al. JSES 2003

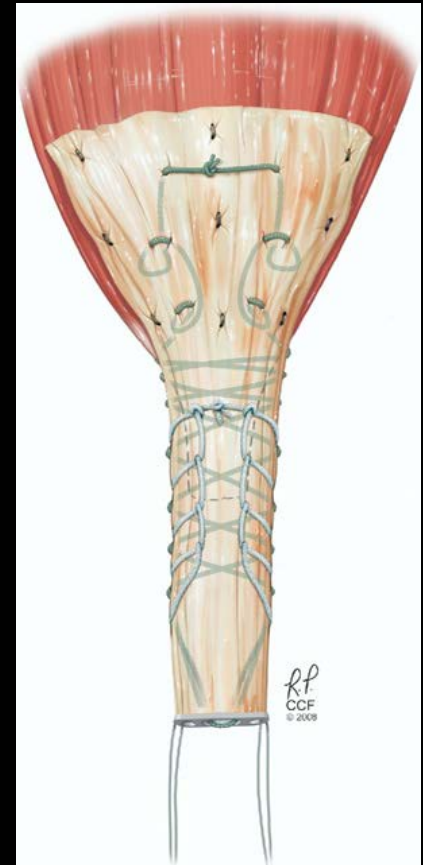


# Operative treatment



# Operative Treatment

- Chronic Tears
  - Often retracted & scarred
  - Can repair with shortening up to 90°
  - Achilles tendon allograft & hamstring allograft used for reconstruction
  - Improvement in strength & outcome scores



Bosman et al. JSES 2012  
Morrey et al. JSES 2014

# Summary

- Distal biceps rupture causes deficits in supination strength & endurance.
- Repair results in improvement in strength & function.
- Both two incision & single incision have good results.
- Chronic repairs may require allograft augmentation.

# Thank You!

