

Elbow Ultrasound Anatomy and Scanning Protocol

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Syllabus PDF

Disclosures

- Consultant: Bioclinica
- Book Royalties: Elsevier
- Not relevant to this lecture

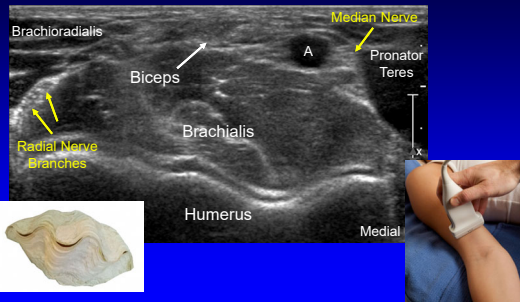
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Fundamentals of Musculoskeletal Ultrasound are
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See www.jacobsonmuskus.com for syllabus other educational material

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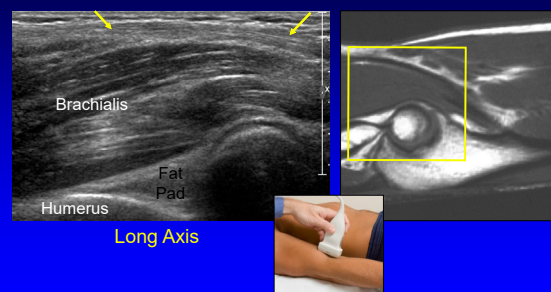
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Anterior Elbow: transverse



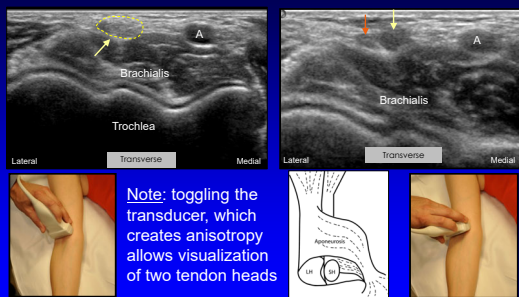
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Biceps, Brachialis, and Anterior Recess



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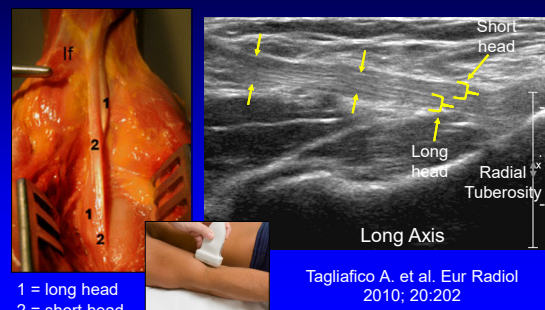
Biceps Brachii: terminal bifurcation



Courtesy of M. Chiavaras, Hamilton, Ontario

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Biceps Brachii Tendon: distal



Tagliafico A. et al. Eur Radiol
2010; 20:202

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Biceps Tendon

- Medial approach
- "Pronator window"
- Transducer:
 - Distal aspect over medial epicondyle
 - Parallel to humerus
 - Slide transducer anterior

Smith J. et al. J Ultrasound Med 2010; 29:861

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Biceps Brachii Tendon: lateral approach

Long Axis: dynamic imaging

Kalume Brigido M. Eur Radiol 2009 ; 19:1817

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Biceps Tendon

- Flexion, pronation view
- Transverse: between radius and ulna
- Radial tuberosity rotated into view
- Limited diagnostic value
- Ideal biceps tendon injection

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UCL and Common Flexor Tendon

Coronal

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Technique: cubital tunnel

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Technique: ulnar nerve subluxation

Transverse

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Technique: lateral

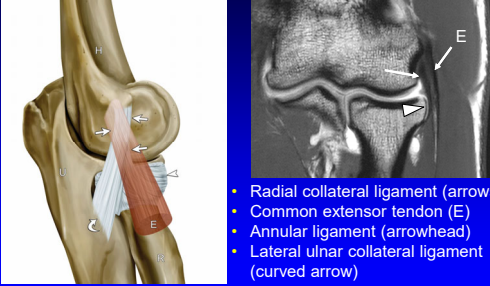
elbow partially flexed

- Common extensor tendon
- Radial collateral ligament
- Radial head & annular recess
- Capitellum



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Lateral Collateral Ligament Complex



- Radial collateral ligament (arrows)
- Common extensor tendon (E)
- Annular ligament (arrowhead)
- Lateral ulnar collateral ligament (curved arrow)

Jacobson J. et al. J Ultrasound Medicine 2013; 33:1041

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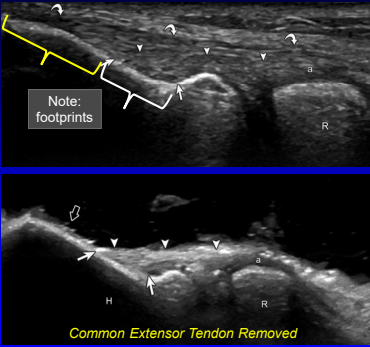
Lateral Collateral Ligament Complex

- Common extensor tendon (curved arrows)
- Radial collateral ligament (arrowheads)
- Annular ligament (a)

Note: footprints

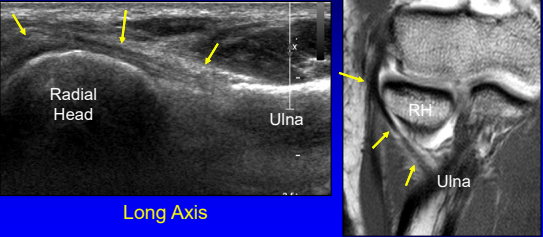
Common Extensor Tendon Removed

Jacobson J. et al. J Ultrasound Medicine 2013; 33:1041



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Lateral Ulnar Collateral Ligament (LUCL)

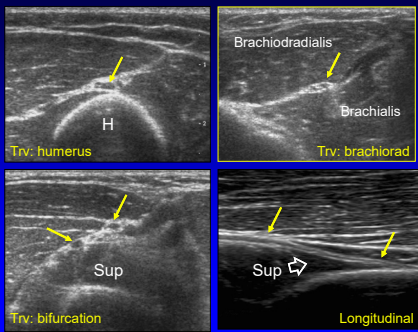


Long Axis

*LUCL attaches at crista supinator of ulna

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Radial Nerve



Trv: humerus

Brachioradialis

Trv: brachiorad

Sup

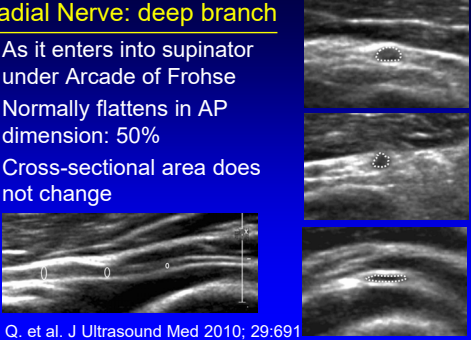
Sup

Longitudinal

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Radial Nerve: deep branch

- As it enters into supinator under Arcade of Frohse
- Normally flattens in AP dimension: 50%
- Cross-sectional area does not change




Dong Q. et al. J Ultrasound Med 2010; 29:691

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Technique: posterior

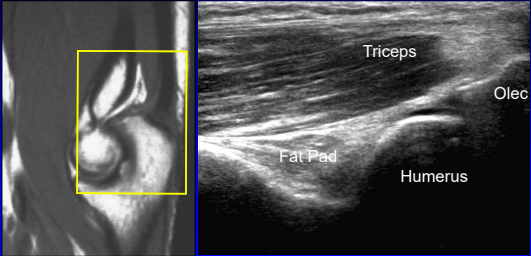
elbow flexed

- Olecranon recess
- Triceps brachii
- Olecranon bursa



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Olecranon Recess and Triceps

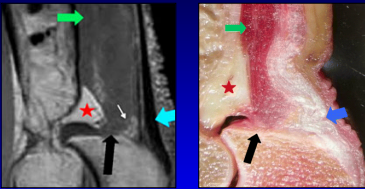


Triceps
Fat Pad
Humerus
Olec

Sagittal

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Anatomy of the Distal Triceps Brachii

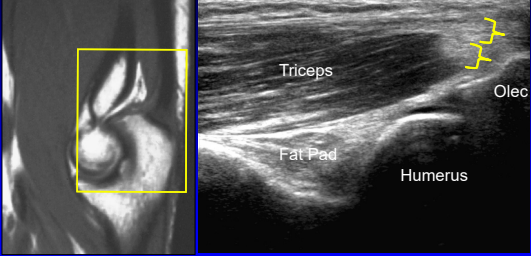


- Superficial (blue arrow): long + lateral heads
- Deep (black arrow): medial head
 - Primarily muscular insertion

*From Resnick, Skeletal Radiol 2009; 38:171

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Olecranon Recess and Triceps

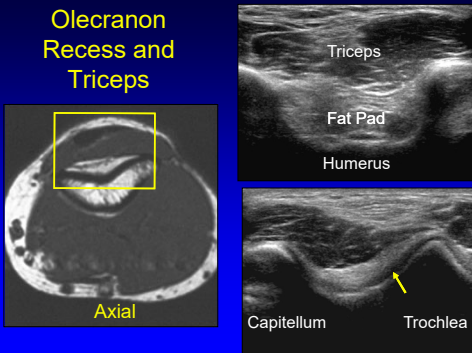


Triceps
Fat Pad
Humerus
Olec

Sagittal

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Olecranon Recess and Triceps



Triceps
Fat Pad
Humerus

Capitellum
Trochlea

Axial

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Take-home Points:

- Follow a scanning protocol
- Do not focus exam too much
- Use bone landmarks:
 - Orientation
 - Where tendon abnormalities occur
- Biceps scanning technique

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Thank you!



NYC



Ann Arbor



San Diego

Syllabus on line and other educational material:
www.jacobsonmskus.com

Twitter handle: @jjacobsn

