CADAVER DISSECTION – POSTERIOR FOREARM

All of the terms indicated below in **BOLD** print should be identified during the student’s oral presentation on this region.

**PROCEDURE:**

I. **SURFACE ANATOMICAL LANDMARKS** – Prior to dissection, identify the following on the anterior forearm: *medial epicondyle, lateral epicondyle, olecranon process, head of ulna, dorsal tubercle.*

II. **SUPERFICIAL VESSELS** – Determine the location of any major superficial veins or nerves in your area of dissection to avoid damaging these vessels and nerves as you dissect.

A. **Cephalic vein** – The cephalic vein is located on the lateral surface of the forearm extending in a proximal direction into the arm.

B. **Basilic vein** – The basilic vein is located on the medial surface of the forearm extending in a proximal direction into the arm.

In addition to the superficial vein, you may also observe the following cutaneous nerves.

C. **Radial nerve (Cutaneous Branches)** – Cutaneous branches of the radial nerve supply the skin of the posterior forearm.

D. **Musculocutaneous nerve (Cutaneous Branches)** – Cutaneous branches of the musculocutaneous nerve supply the lateral portion of the forearm.

- Avoid cutting these superficial veins during the incisions and removal of the skin on the posterior portion of the forearm.

III. **REMOVAL OF SKIN** – Using the following steps, remove the skin from the anterior forearm.

A. **Incision Lines** – Use a marking pencil to outline the incision lines (illustrated on the handout). Use a scalpel blade to cut through the skin. Insert a smooth probe under the skin along the remaining incision lines (instructor will demonstrate). When making your remaining incision, only cut to the smooth probe to avoid damaging superficial structures deep to the skin.

- Avoid cutting these superficial veins listed above.

If the anterior forearm on the human cadaver you are dissecting has previously been dissected, cut the skin at the distal incision line and separate the skin from the underlying fascia from the wrists to the elbow. Do not remove the skin but leave it attached at the elbow to cover your dissection area.

Posterior Median Incision Line – Cut the skin from an area just distal to the olecranon process, toward the wrist along the posterior surface of the forearm.

Distal Incision Line – Cut the skin from the median incision line at the wrist, both medially and laterally, to the sides of the forearm.

Proximal Incision Line – Cut the skin from the median incision line just distal to the olecranon process, both medially and laterally, to the sides of the forearm.

To visualize the tendons of the posterior forearm muscles in the hand, extend the posterior median incision line from the wrist to the metacarpophalangeal joints. *Avoid cutting the
extensor retinaculum. Cut the skin from the end of this incision line, both medially and laterally along the metacarpophalangeal joints to expose the tendons located in the posterior portion of the hand.

B. Locate the Epimysium of the Posterior Forearm Muscles – Use a smooth probe to locate the separation between the superficial fascia and deep fascia. Using the smooth probe and your fingers (avoid using the scalpel blade unless absolutely necessary). Remove the skin from the posterior median incision line in both a medial and lateral direction. * Avoid damaging the extensor retinaculum at the wrist.

Identify the extensor retinaculum. This band of connective tissue prevents the bowing out of tendons extending to the digits.

- Locate the cephalic vein and the basilic vein in the subcutaneous tissue on the lateral and medial sides of the forearm. Expose these veins from the wrist to the elbow.

IV. MUSCLE IDENTIFICATION AND SEPARATION: To expose the muscles on the anterior side of the forearm, make a longitudinal cut through the deep fascia. Avoid damaging the tendons deep to the fascia. Do not remove the fascia if it fuses with the muscles located in the proximal portion of the posterior forearm.

Muscles originating from the lateral epicondyle (Lateral – Medial).

A. Brachioradialis – Identify the brachioradialis muscle. The muscle separates the anterior forearm group (flexors and pronators) from the posterior forearm group (extensors and supinator).

As your progress from a lateral to a medial direction, identifying the following muscles.

B. Extensor carpi radialis longus – Next to the brachioradialis muscle, identify the extensor carpi radialis longus muscle. The tendon of this muscle passes deep to the abductor pollicis longus and extensor pollicis brevis muscle on the lateral side of the forearm proximal to the wrist. This muscle inserts at the base of the second metacarpal.

C. Extensor carpi radialis bravis – Next to the extensor carpi radialis longus muscle, identify extensor carpi radialis bravis muscle. The tendon of this muscle also passes deep to the abductor pollicis longus and extensor pollicis brevis muscle on the lateral side of the forearm proximal to the wrist. This muscle inserts at the base of the third metacarpal.

D. Extensor digitorum - Next to the extensor carpi radialis bravis muscle, identify extensor digitorum muscle. The tendons of this muscle pass deep to the extensor retinaculum at the wrist. On the dorsal side of the hand, the tendons of this muscle are linked by intertendinous connections. This muscle inserts on the extensor expansions near the proximal phalanges of digits 2-4.

E. Extensor digitii minimi – Identify the extensor digitii minimi, partially detached from the extensor digitorum. The tendon of this muscle also passes deep to the extensor retinaculum to insert on the extensor expansion of the fifth digit.

F. Extensor carpi ulnaris – Identify the extensor carpi ulnaris muscle on the medial side of the posterior forearm. The tendon of this muscle inserts at the base of the fifth metacarpal.

Muscles originating from the ulna, radius, and interosseous membrane
G. **Abductor pollicis longus** – Identify the abductor pollicis longus muscle on the distal lateral side of the forearm. This muscle crosses over the tendons of the extensor carpi radialis longus and brevis muscles to insert at the base of the first metacarpal.

H. **Extensor pollicis bravis** – Identify the extensor pollicis bravis muscle just distal to the abductor pollicis longus muscle. The tendons of the abductor pollicis longus and extensor pollicis bravis muscles run adjacent to one another in the direction of the thumb. The extensor pollicis bravis muscle inserts at the base of the proximal phalanx of the thumb.

I. **Extensor pollicis longus** – Identify the tendon of the extensor pollicis longus muscle as it courses around the dorsal tubercle of the radius. The tendons of the extensor pollicis longus and the extensor pollicis bravis muscles form the boundaries of the “anatomical snuff box” on the lateral side of the wrist. The radial artery is located at the floor of the snuffbox.

J. **Extensor indicis** – Identify extensor indicis muscle deep to the extensor digitorum and extensor digiti minimi muscles. The tendon of this muscle is located medial to the tendon of the extensor pollicis longus muscle. This muscle inserts on the extensor expansion of the second digit.

K. **Dorsal interossei** – You may be able to identify the dorsal interossei muscle between the metacarpal bones on the dorsal surface of the hand, deep to the extensor digitorum tendons.

V. **VESSEL AND NERVE IDENTIFICATION**

A. Superficial Veins (Previously Identified)

B. **Radial artery**– Identify the radial artery within the “anatomical snuff box”.