MEDICAL EDUCATION RESOURCE

Muscles Connecting Upper Limb with Vertebral Column and its Dissection

Muscles Connecting Upper Limb with Vertebral Column

These are the **extrinsic muscles of the back (superficial group)**.

1. Trapezius

- **Origin** ? External occipital protuberance, ligamentum nuchae, spinous processes of C7–T12.
- **Insertion** ? Lateral ? of clavicle, acromion, spine of scapula.
- **Nerve supply** ? Spinal accessory nerve (motor), C3–C4 ventral rami (sensory proprioception).
- **Actions** ?
    - Upper fibers ? elevate scapula.
    - Middle fibers ? retract scapula.
    - Lower fibers ? depress scapula.
    - Upper + lower ? rotate scapula upward (abduction >90°).
- **Clinical** ? Spinal accessory nerve injury ? shoulder droop, difficulty elevating shoulder.

2. Latissimus Dorsi

- **Origin** ? Spinous processes of T7–L5, thoracolumbar fascia, iliac crest, lower 3–4 ribs.
- **Insertion** ? Floor of intertubercular sulcus of humerus.
- **Nerve supply** ? Thoracodorsal nerve (C6–C8).
- **Actions** ? Extends, adducts, medially rotates arm; climbing and swimming muscle.
- **Clinical** ? Used in tendon/muscle grafts (e.g., breast reconstruction).

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3. Levator Scapulae

- **Origin** ? Transverse processes of C1–C4.
- **Insertion** ? Superior angle and medial border of scapula.
- **Nerve supply** ? Dorsal scapular nerve (C5), C3–C4 ventral rami.
- **Actions** ? Elevates scapula, tilts glenoid cavity downward.
- **Clinical** ? Spasm causes stiff neck.

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4. Rhomboid Major

- **Origin** ? Spinous processes of T2–T5.
- **Insertion** ? Medial border of scapula (below spine).

- **Nerve supply** ? Dorsal scapular nerve (C5).
- **Action** ? Retracts and stabilizes scapula.

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5. Rhomboid Minor

- **Origin** ? Ligamentum nuchae, spinous processes of C7–T1.
- **Insertion** ? Medial border of scapula at level of spine.
- **Nerve supply** ? Dorsal scapular nerve (C5).
- **Action** ? Retracts scapula, assists in rotation.

Dissection of These Muscles

Step 1: Expose Superficial Muscles

- After skin and fascia removal ? identify **trapezius** in upper back and **latissimus dorsi** in lower back.
- Clear attachments and outline their borders.

Step 2: Reflection of Trapezius

- Incise trapezius near midline and reflect laterally.
- Identify **accessory nerve** and transverse cervical vessels beneath.

Step 3: Reflection of Latissimus Dorsi

- Incise near vertebral attachment and reflect laterally toward humerus.
- Identify **thoracodorsal nerve and vessels** entering muscle.

Step 4: Expose Deeper Muscles

- Levator scapulae and rhomboids lie deep to trapezius.
- Reflect trapezius ? identify **levator scapulae** superiorly, **rhomboids** attaching to scapula medially.
- Dorsal scapular nerve and artery lie along medial border of scapula.

Step 5: Clinical Demonstrations

- Show **shoulder elevation test** for trapezius.
- Demonstrate **pull-up motion** for latissimus dorsi.
- Palpate medial border of scapula for rhomboid contraction during retraction.