

Back - Laboratory Identifications - September 18, 2008

Thoracoappendicular Muscles and Related Structures

1. Trapezius - superior attachment at superior nuchal line (insertion and functional origin)
2. Trapezius - origin from cervical spines (ligamentum nuchae) and thoracic spines
3. Trapezius - upper fibers (superior nuchal line) insert on lateral scapular spine and on the acromion
4. Trapezius - inferior fibers (lower thoracic spines) insert on medial scapular spine
5. Trapezius - understand how trapezius effects upward rotation of the scapula
6. Serratus anterior - vertebral border and inferior angle of trapezius (contributes to upward rotation)
7. Latissimus dorsi - origin from thoracolumbar fascia, insertion at inferior angle scapula and at the humerus
8. Rhomboideus major - origin from spines of T2-T5, insertion on vertebral border of scapula, action is retraction
9. Rhomboideus minor - origin from spines C7-T1, insertion on vertebral scapula near superior angle, action is retraction and elevation
10. Levator scapulae - origin from transverse processes of C1-4, insertion on superior angle of scapular, action is elevation
11. Relations of levator scapulae - lateral: spinal accessory nerve and (superficial branch) transverse cervical artery
12. Relations of levator scapulae - medial: dorsal scapular nerve (nerve to the rhomboids) and dorsal scapular artery (deep branch of transverse cervical artery)

Intermediate muscles of the back

1. Serratus posterior superiorus - inhalation
2. Serratus posterior inferiorus - exhalation
3. Dorsal rami of spinal nerves providing motor and sensory innervation along the posterior axial border

Deep muscles of the back

1. Splenius capitus - deep to trapezius, from nuchal ligament (spines of C7-T6) to lateral occipital bone and mastoid process, inserts immediately inferior to superior nuchal line
2. Splenius cervicis - stops short of skull to insert on transverse processes of C1-C4
3. Semispinalis capitus - from upper thoracic transverse processes to occipital of skull between superior and inferior nuchal lines
4. Greater occipital nerve - passing posterior through the semispinalis muscle at the level of the axis

5. Erector spinae - three muscles arising from common tendon on posterior sacrum
6. Spinalis lateral to vertebral spines and anterior to transverse processes
7. Longissimus - immediately lateral to spinalis
8. Iliocostalis - origin at posterior iliac crest and insertion at the angle of the ribs
9. Appreciate that transversospinalis muscles exist (multifidus, rotatores, semispinalis) are cradled by the spines and transverse processes and must be dealt with during laminectomy

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Back: Review Questions - September 17,2008

True/False

1. The anterior longitudinal ligament forms, in part, the anterior boundary of the spinal canal.
2. The superior and inferior vertebral notches form intervertebral foramina.
3. The anterior longitudinal ligament resists flexion of the back.
4. The denticulate ligaments are extensions of the arachnoidia.
5. The filum terminalis externus is derived from dura mater whereas the filum terminalis internus is derived from arachnoidia.
6. The dural sac extends inferiorly to the level of the 2nd and maybe 3rd lumbar vertebrae.
7. The internal anterior vertebral venous plexus is within the epidural fat.
8. The posterior vertebral venous plexus is within the subarachnoid space.
9. The internal vertebral venous plexus is valvless and, thus, provides part of a pathway for spread of infection from the ischiorectal fossa to the cranium.
10. The external vertebral venous plexus is demonstrated during dissection of the suboccipital region.
11. The spinal cord relies, in part, on radicular arteries for critical vascularization.
12. The intermediate muscles of the back are innervated by the long thoracic nerve.
13. Serratus posterior superioris pulls the upper ribs in the superior direction and is, thus, a muscle of inspiration.
14. Serratus posterior inferioris pulls the lower ribs downward and, thus, is a muscle of inspiration.
15. Paralysis of the rhomboids (dorsal scapular nerve) and the trapezius (spinal accessory nerve) is expected cause uncompenstated loss of retraction of the scapula.
16. Latissimus dorsi, a powerful extensor of the arm, can act as a flexor when the arm is fully extended.
17. The transversospinal group of muscles are innervated by the dorsal rami (segmental) of spinal nerves.
18. The action of levator scapulae is to depress the scapula.
19. The thoracolumbar fascia provides a site of origin for the rhomboids and the levator scapulae.
20. The longissimus muscle extends as far superiorly as the mastoid process of the skull.
21. Iliocostalis attaches to the ribs along the costotransverse joints.

Identification and Short Answer

1. Thoracolumbar fascia
2. Innervation of intrinsic (deep) muscles of the back
3. Nuchal ligament
4. Anterior longitudinal ligament
5. Posterior longitudinal ligament
6. Ligamentum flavum

7. Intervertebral disk
8. Superior nuchal line
9. pedicle
10. Superior and Inferior vertebral notches
11. Lamina
12. Transverse foramen
13. Vertebral foramen
14. Triangle of auscultation
15. Lumbar triangle

Essay


1. Discuss the surface anatomy of the back.
2. Discuss the bony parts of the scapula.
3. Discuss the structure, relationships, innervation (sensory and motor), vasculature, and lymphatics of the cervical, thoracic, and lumbar vertebrae.
4. Discuss the stabilization of the vertebral column.
5. Discuss the attachments and relationships of the superior nuchal line.
6. Discuss the structure, relationships, innervation (sensory and motor), vasculature, and lymphatics of the superficial, intermediate, and deep muscles of the back.
7. Discuss rotation of the scapula by the trapezius muscle.
8. Discuss the anatomy of the erector spinae muscles. Include relationships, fascial specializations, vascularization, innervation, lymphatics, movements, and compensation in the case of nerve injury.
9. Discuss the anatomy of the superior and inferior posterior serratus muscles. Include relationships, fascial specializations, vascularization, innervation, lymphatics, movements, and compensation in the case of nerve injury.
10. Discuss the anatomy of the rhomboideus major and minor muscles. Include relationships, fascial specializations, vascularization, innervation, lymphatics, movements, and compensation in the case of nerve injury.
11. Discuss the anatomy of the levator scapula muscle. Include relationships, fascial specializations, vascularization, innervation, lymphatics, movements, and compensation in the case of nerve injury.

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Surface Anatomy and Boundaries

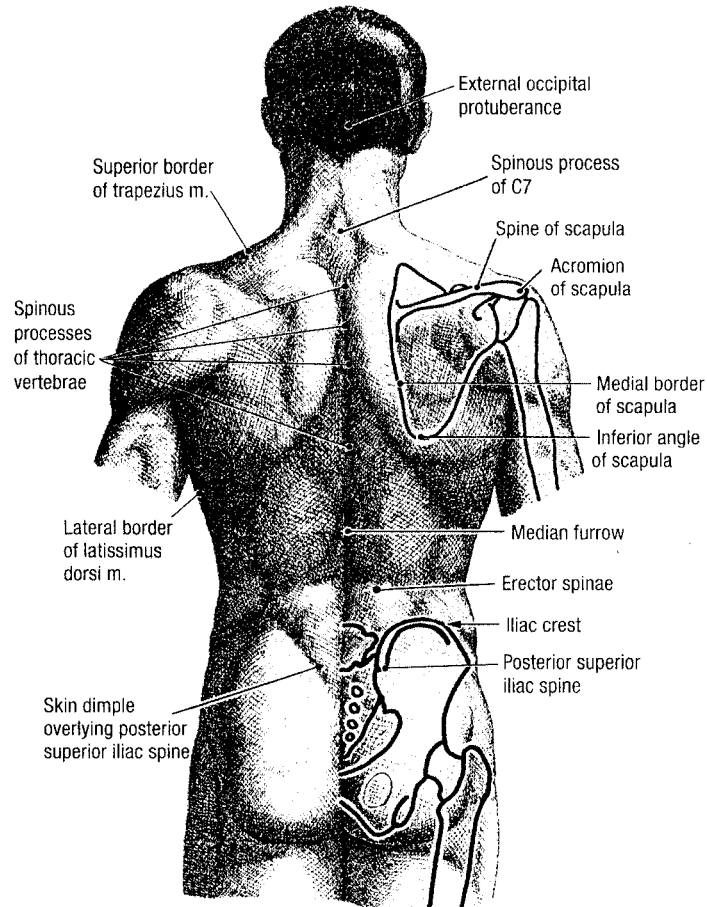


Figure 1.01. Surface anatomy of the back.

Skeleton of the Back - Overview

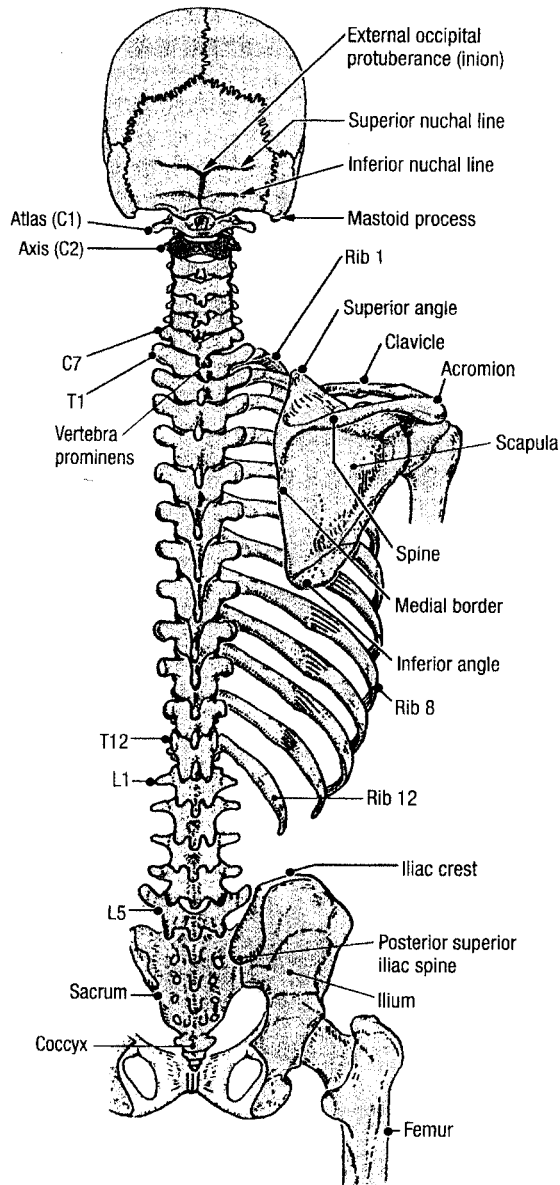


Figure 1.02. Skeleton of the back and vertebral column.

Typical Spinal Nerve

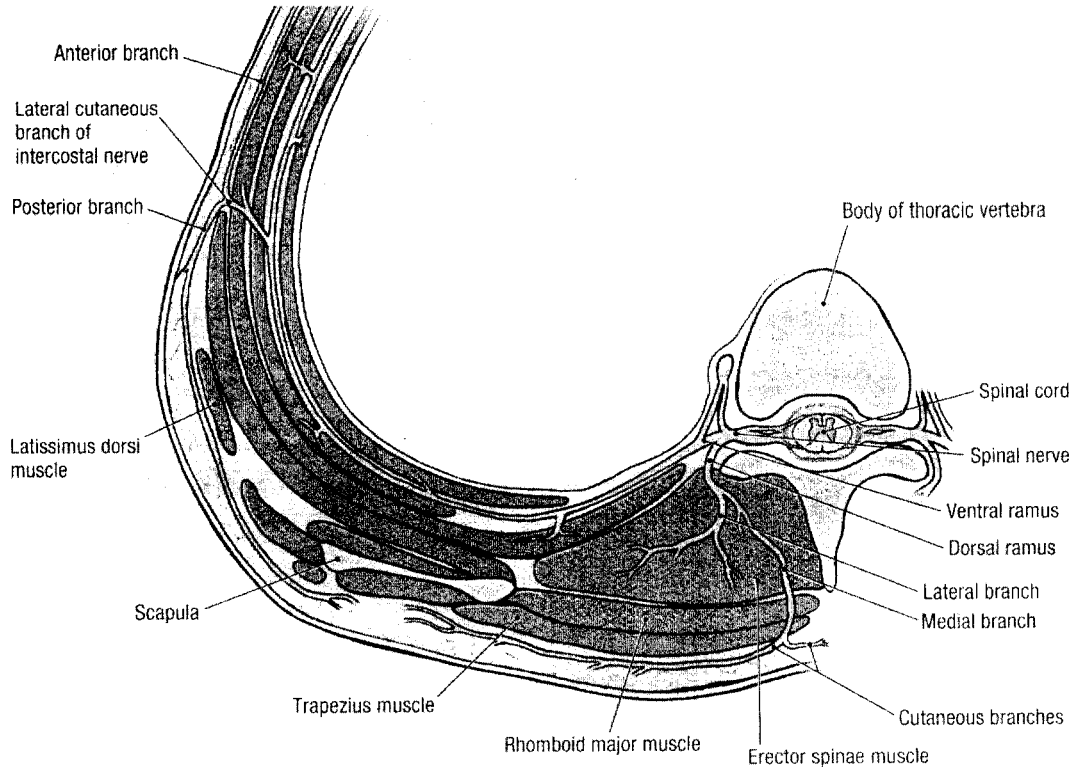


Figure 1.9. Branches of a typical spinal nerve.

Greater Occipital Nerve and Artery

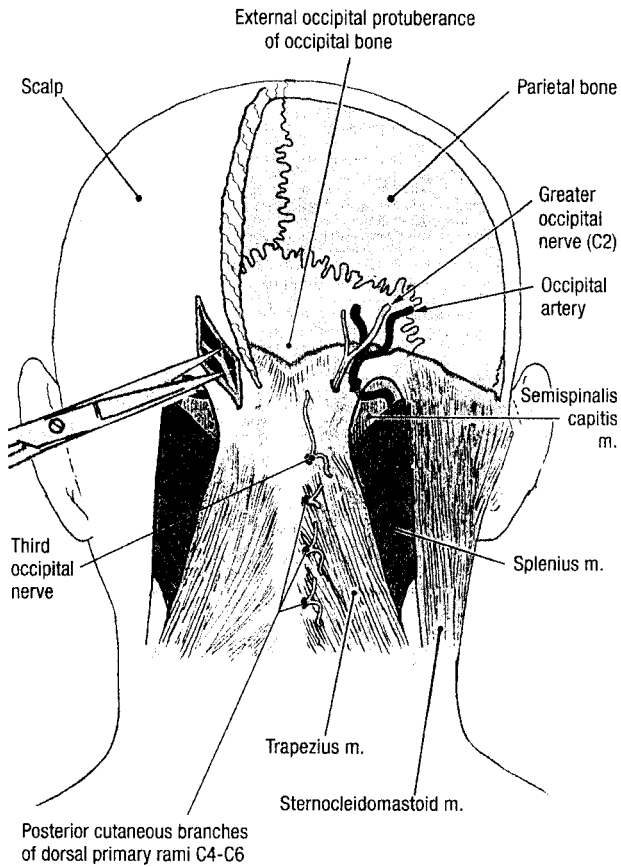


Figure 1.08. Greater occipital nerve and occipital artery.

Superficial Muscles of the Back – Trapezius and Latissimus Dorsi

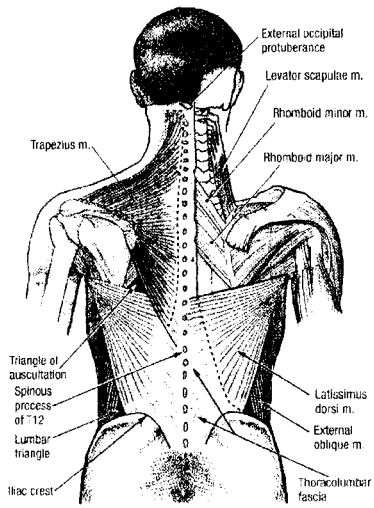


Figure 1.09. How to reflect the muscles of the back

Rotation of the Scapula

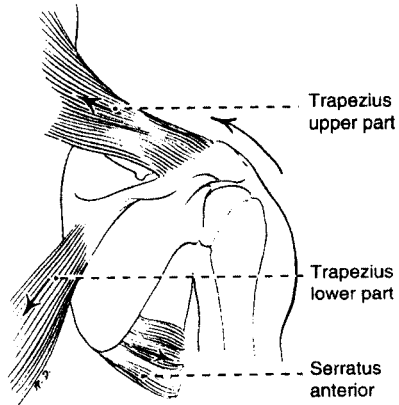


FIGURE 15-36.
The muscles that rotate the scapula upward during abduction of the arm.

Superficial Muscles of the Back – Rhomboids and Levator Scapulae

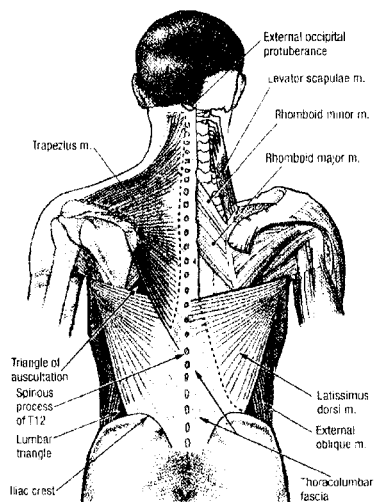
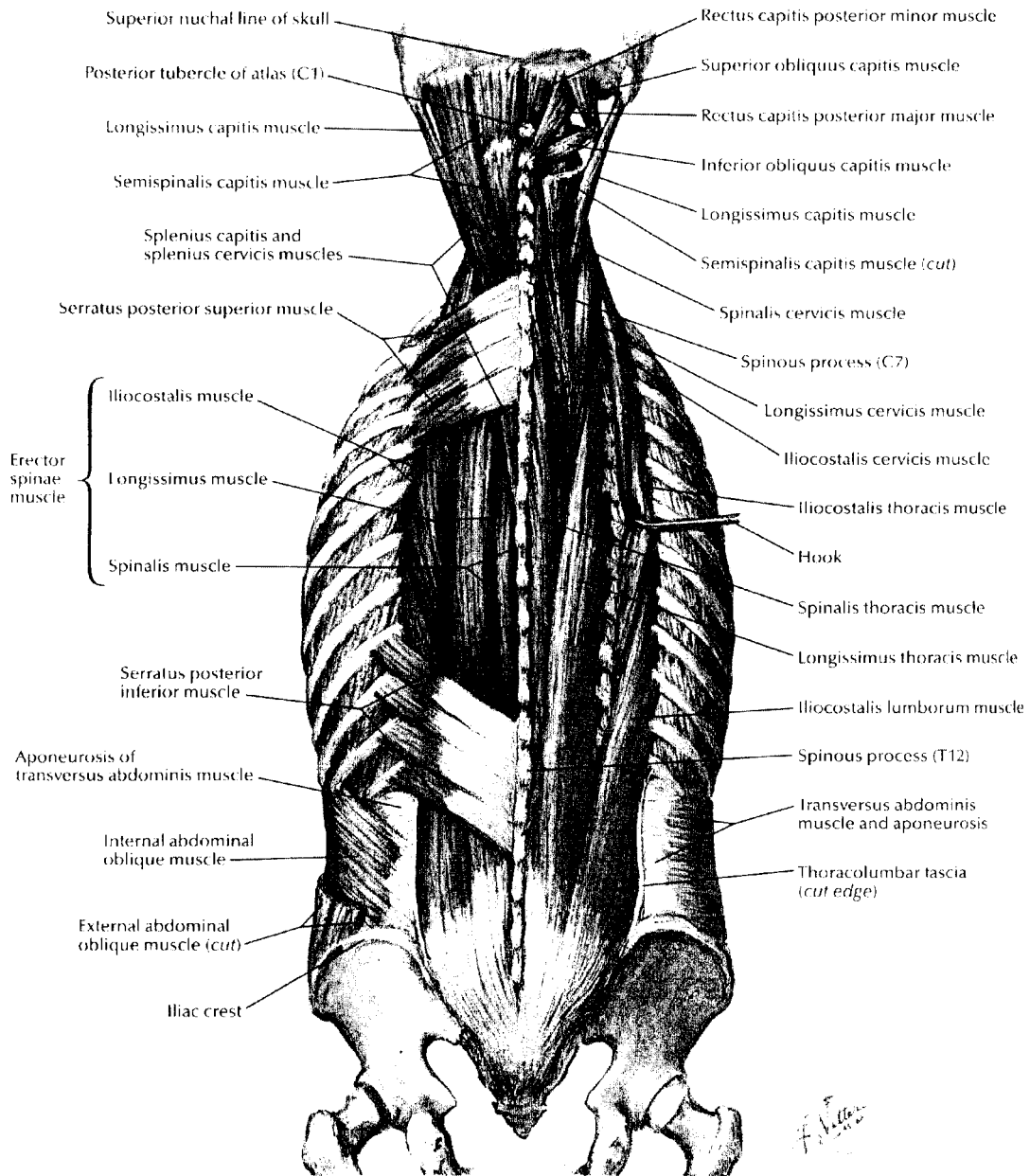
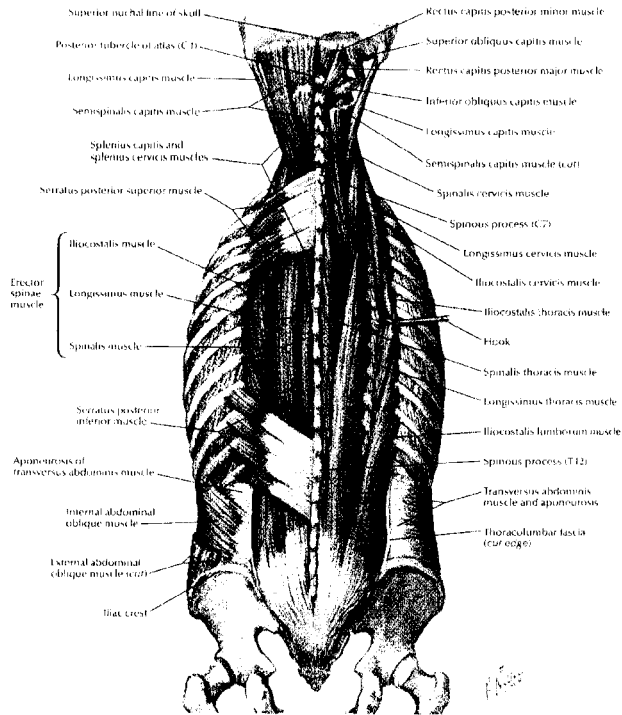


Figure 1.09. How to reflect the muscles of the back.

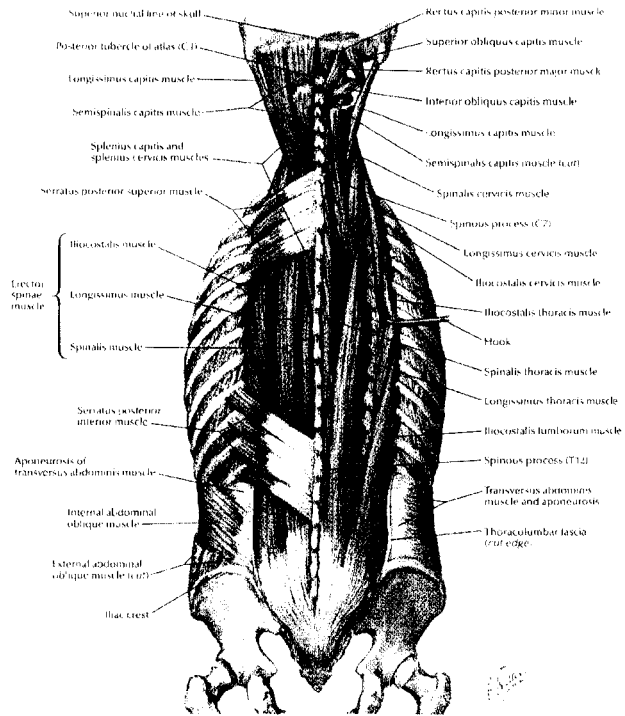
Intermediate and Deep Muscles of the Back – Serratus Posterior Superior and Serratus Posterior Inferior

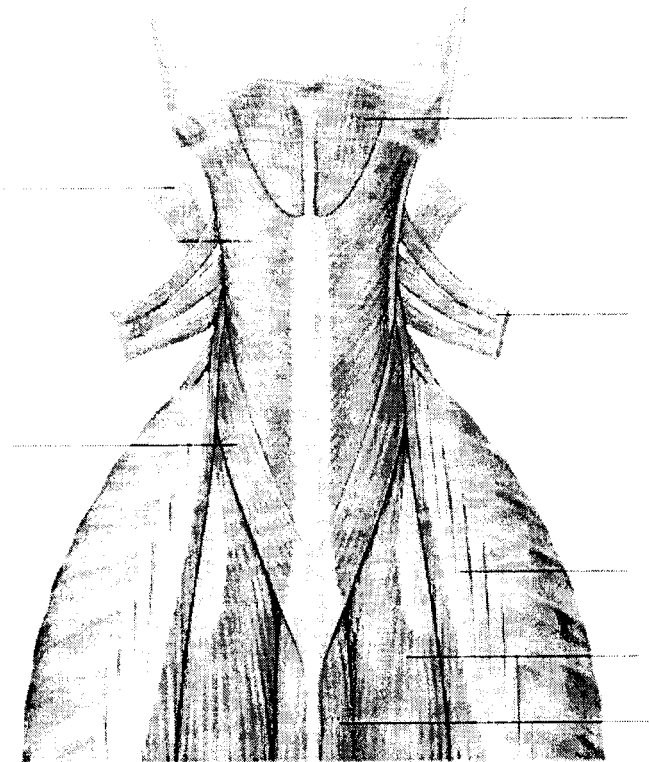


Deep Muscles of the Back – Cervical Region



Deep Muscles of the Back – Thoracic Region





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Deep Muscles of the Back – Transversospinal Group

