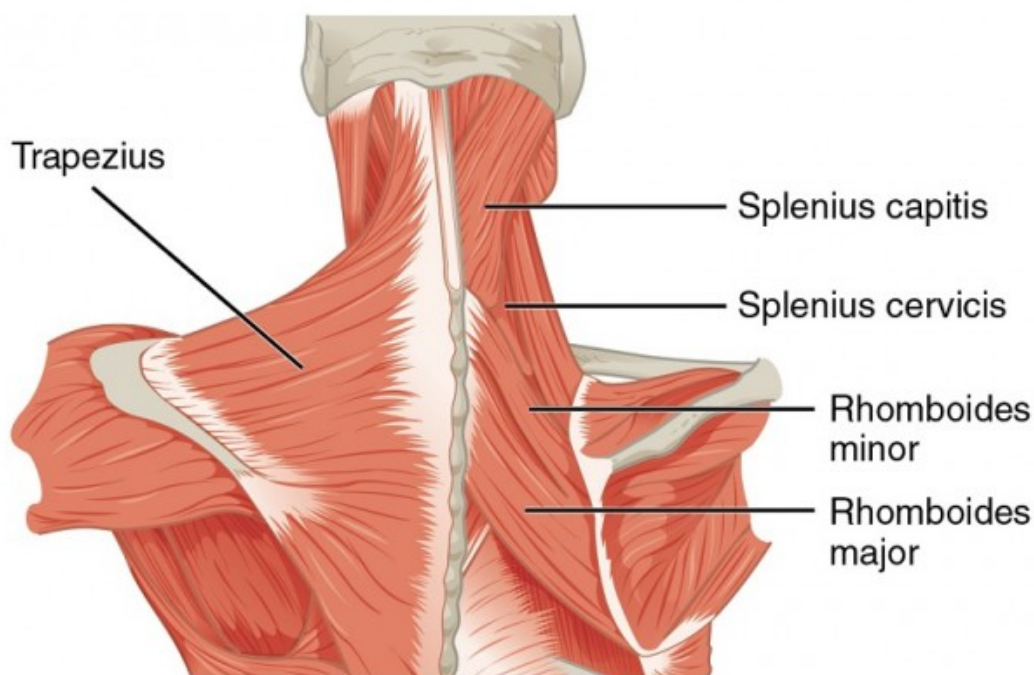


Topographic Anatomy of the Back

[See online here](#)

The skin of the back is divided into six regions. The central vertebral region is the area of the skin overlying the vertebral column. The deltoid area lies over the shoulder joints. The scapular region encloses the scapula on both sides. The area of the skin beneath the scapula is called infra-scapular region. The area beneath the ribs and above the hip bone forms the lumbar region on both sides. The sacral region is the area of skin between the two hip bones.



Superficial (left side) and deep (right side) muscles of the neck and upper back (posterior view)

Muscles of the Back

The major muscles of the back are divided into **three groups**:

Extrinsic muscles	Trapezius	Elevates and depresses the scapula
	Latissimus dorsi	Responsible for adduction, internal rotation, and extension of the shoulder joint
	Rhomboid major and Rhomboid minor	Keep the scapula pressed to the thoracic wall
	Levator Scapulae	Elevates the scapula
Intermediate muscles	Serratus posterior superior	Elevates the rib cage
	Serratus posterior inferior	Depresses the rib cage

Intrinsic muscles	Spinotransversale muscles (splenius capitis and splenius cervicis)	Responsible for extension of the neck
	Erector spinae muscles	Iliocostalis lies laterally, longissimus is in the middle and spinalis is the most medial one
	Transversospinalis	Semispinalis lie superficially, multifidus in between the two sets of muscles, and rotatores are the deepest

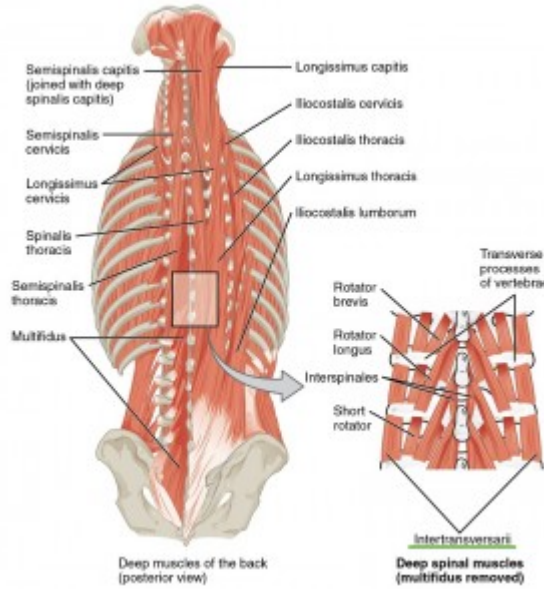


Image: "Deep Muscles of the back (posterior view)" by Phil Schatz. License: [CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)

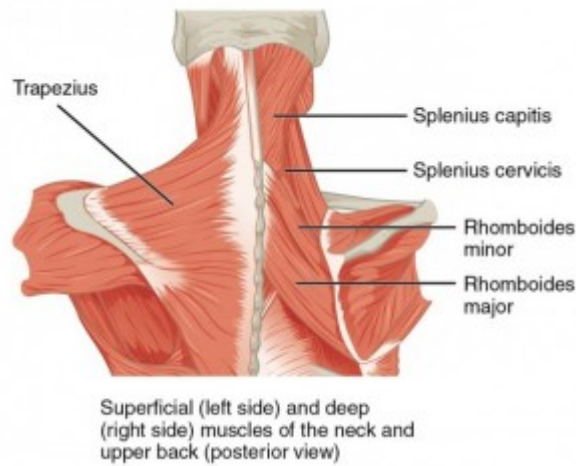


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Bony Prominences of the Back

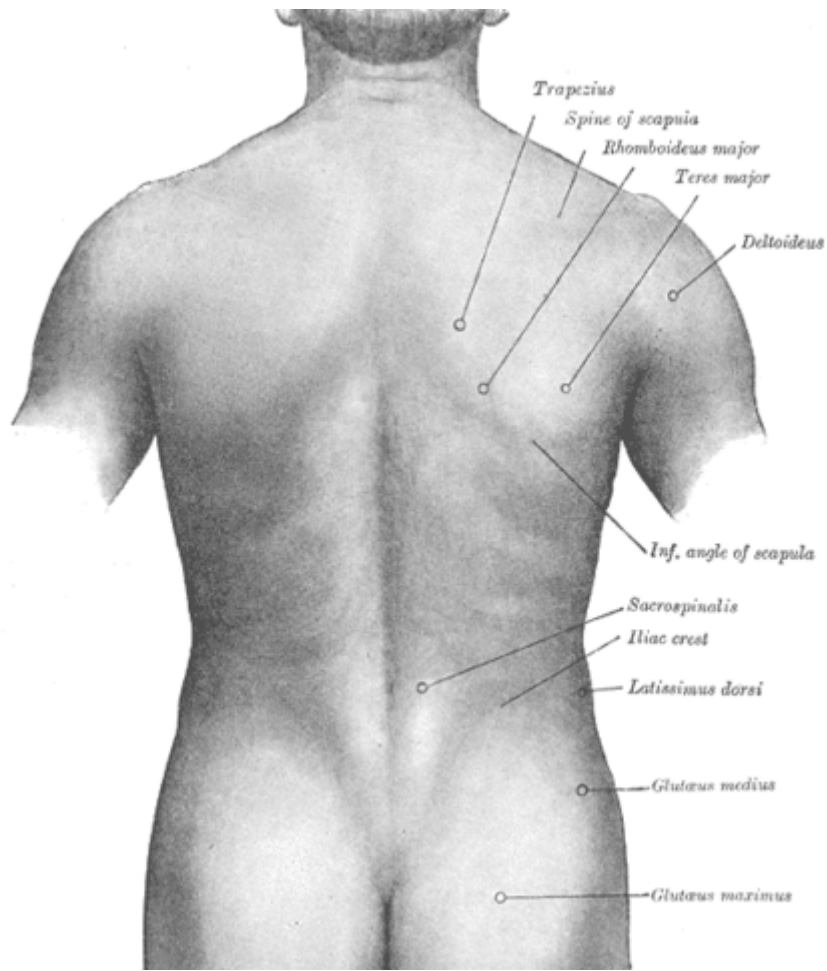


Image: "Surface anatomy of the back." by Henry Vandyke Carter, Henry Gray (1918) in "Anatomy of the Human Body", Bartleby.com: Gray's Anatomy. License: Public Domain

The following bony prominences constitute the surface anatomy of the back:

- The **spinous process** of the vertebra in thin, lean individuals. The spinous process of **cervical vertebra 7** is the most prominent
- The **acromion** and the **spine of the scapula**.
- **Iliac crest** and **posterior superior iliac spine of the hip bones**
- **Rib cage** in thin, lean patients or in patients having a **barrel chest**

Triangles of the Back

Triangle of auscultation

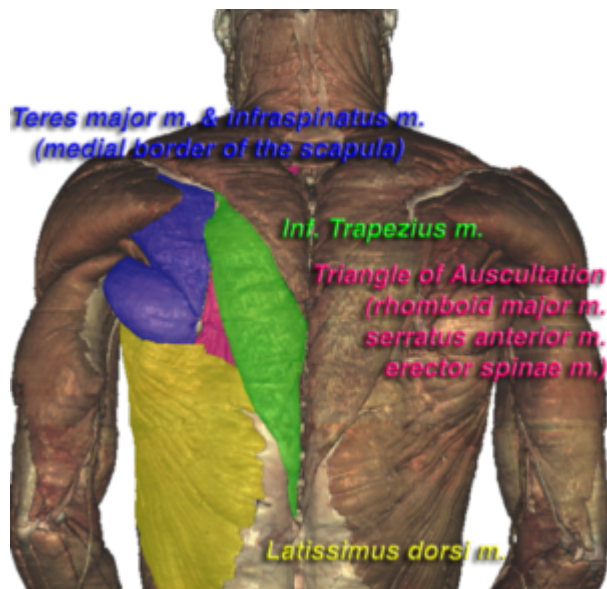


Image: "Posterior dissection of the Visible Human Male showing the triangle of auscultation. The borders and superficial contents of the triangle are highlighted and labeled. Triangle of auscultation in pink." by Daniel G. Bates - Visible Human Male, dissection created using the VH Dissector and further edited.
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The triangle of auscultation is an area on the back, where the breathing sounds are most audible due to the relative thinning of musculature.

The borders of the triangle are defined by:

- Trapezius muscle superiorly and medially
- Latissimus dorsi inferiorly
- Medial border of the scapula

Inferior lumbar triangle

The inferior lumbar triangle, also known as the **petit triangle**, lies superficially. The **latissimus dorsi** forms the medial boundary, the **external oblique** forms the lateral boundary, while the **iliac crest** forms the inferior boundary. The inferior lumbar triangle is the site of **herniation of the abdominal viscera**.

Superior lumbar triangle

This is also known as **Grynfeltt-Lesshaft triangle** and lies deep to the inferior lumbar triangle. The superior lumbar triangle is found in cadavers in a consistent fashion. It is also a common site of herniation of abdominal viscera. The **quadratus lumborum muscle** lies medial to it. The **internal oblique** forms the lateral margin, and the **12th rib** lies superiorly.

Lumbar Puncture

Lumbar puncture (LP) is an invasive procedure during which a small amount of **cerebrospinal fluid (CSF)** is removed from the spinal canal to be analyzed for diagnostic purposes. CSF pressure can also be measured. LP is usually performed after a neurological examination is completed. LP most commonly occurs when there is a concern about infection (such as **meningitis**) or **idiopathic intracranial hypertension**

(pseudotumor cerebri).

During the LP, the patient is asked to lie in the left lateral position with [knees](#) and [hips](#) in the flexed position. The intercrystal line, which is the line joining the superior parts of the iliac crest, is located and marked. This marks the region between **L4 and L5 lumbar vertebrae**. A small, non-cutting LP needle is advanced between the spinous processes of these two vertebrae, and the CSF is collected and submitted for analysis. If the opening pressure is measured, this is done before CSF collection but requires some limb repositioning for accurate measurement.

LP can also be performed in the seated position. One of the potential complications of LP is a post-LP headache. Using a small, non-cutting needle will reduce the risk of a post-LP headache, also known as “low pressure” headache. While there are fewer data to suggest that positioning helps minimize post-LP headache, it is still common to ask the patient to remain in the supine position for half an hour after completing the procedure.

Projection of Viscera onto the Back

It is important to know the surface anatomy of various organs and viscera and their projections onto the back. This is useful in various procedures as well as for the clinical examination of various body systems.

- **Lungs and visceral pleura** roughly lie at **T10** while the parietal pleura at **T12**. This is helpful in **thoracocentesis** or **pleural tap**, during which excess fluid is drained from the pleural cavity for therapeutic and diagnostic purposes
- **Kidneys** are retroperitoneal structures and, therefore, can be easily approached during surgical procedures
- The pain of **aortic aneurysm** and **acute pancreatitis** radiates to the back. Similarly, the pain of **pancreatic cancer** may radiate to the back

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