

Sander, Schwarz

Anatomy pocket

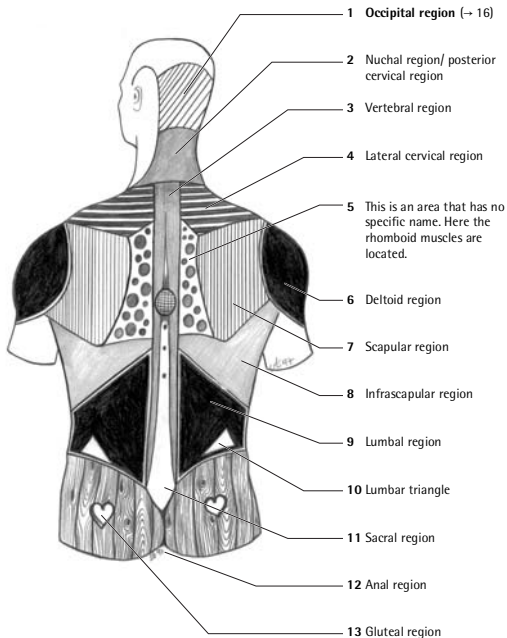


Börm
Bruckmeier
Publishing

6. Dorsal Trunk Wall

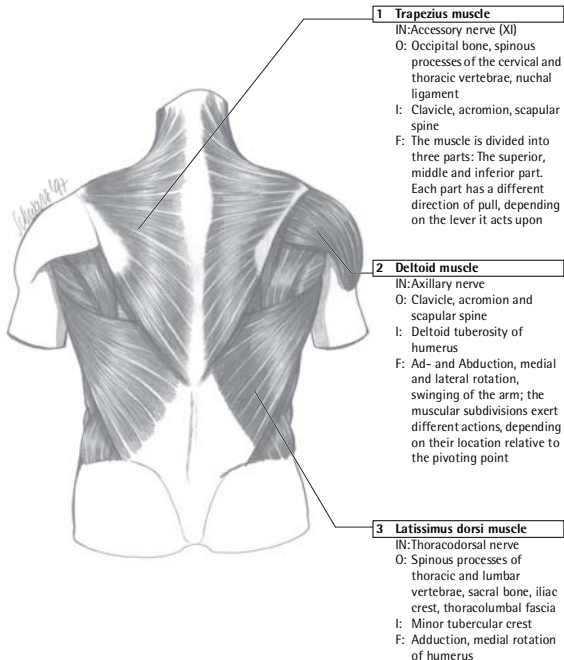
6.1 General Facts

6.1.1 Regions of Dorsal Trunk Wall

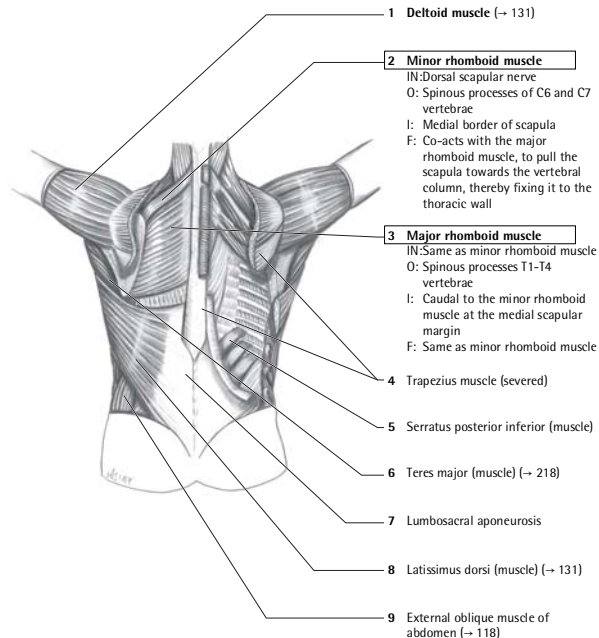


6.2 Muscles, Vessels, Nerves

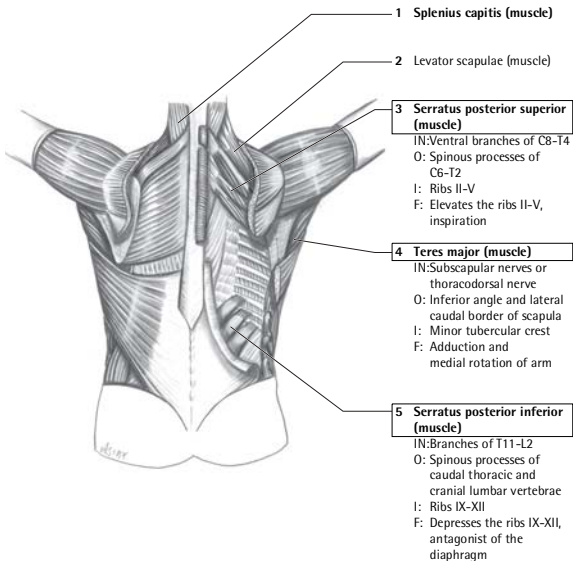
6.2.1 Superficial Musculature of Back



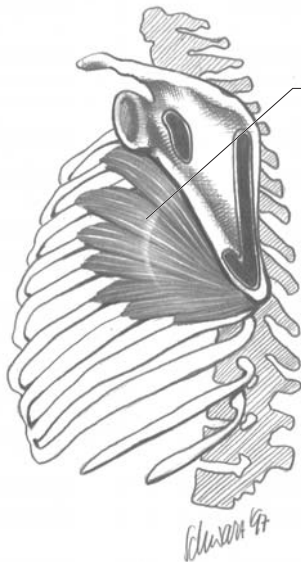
6.2.2 Deep Musculature of Back I



6.2.3 Deep Musculature of Back II



6.2.4 Serratus Anterior (Muscle)

**1 Serratus anterior (muscle)**

IN: Long thoracic nerve

O: Ribs I-IX, divided into superior, middle and inferior part

I: Superior angle, medial border and inferior angle of scapula; the muscle runs ventral to the subscapular muscle below the shoulder blade; seen from the back the sequence therefore would be: Scapula – subscapular muscle – serratus anterior (muscle)

F: Rotation of the scapula (important for arm movement!), fixation of the scapula, may also act as accessory respiratory muscle, together with the rhomboid muscle it forms a muscular sling (stability of the trunk).

For better visualization, the figure shows the muscle insertions located on the ventral side of the scapula, projected onto the dorsal side of the shoulder blade. The scapula is quasi "transparent".

6.2.5 Autochthonous Musculature of Back

Those muscles of the back that are not shifted dorsally from other locations during embryonic development, but instead remain at the site of origin, are called **autochthonous back muscles**.

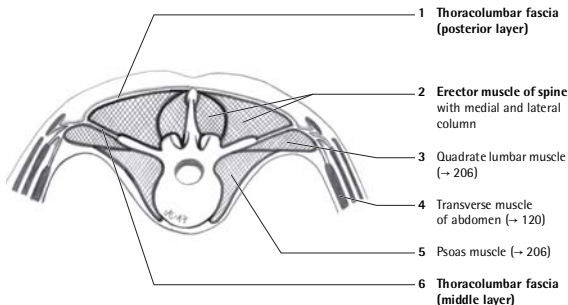
The muscle tracts that jointly form the **erector muscle of spine**, are innervated by the **dorsal branches of the spinal nerves** (→ 95).

The remaining back muscles are innervated by the ventral branches. The **autochthonous back muscles** support the vertebral column through contraction, which builds up pressure within the osseofibrous tunnel resulting in the stiffening of the skeletal axis. In addition it participates in all vertebral column movements.

A classification of the autochthonous back muscles follows below:

	Straight system	Angular system
Medial column	Interspinal straight system (→ 137) Interspinal muscles Spinal muscle Intertransverse muscle	Transversospinal angular system (→ 138) Rotatores muscles Multifidus muscle Semispinal muscles
Lateral column	Intertransversal straight system (→ 139) Longissimus muscle Iliocostalis muscle	Spinotransversal angular system (→ 140) Splenius muscle

6.2.6 Osseofibrous Tunnel

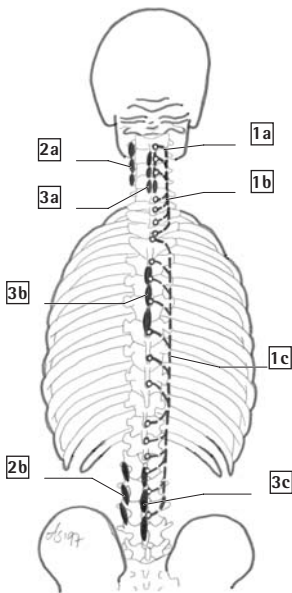


Shown above is a transverse section depicting the **autochthonous back musculature** within the **osseofibrous tunnel**. This tunnel is formed by the **thoracolumbar fascia**, in conjunction with the spinous processes and ribs of the vertebrae. However, within the thoracic area of the spine, the autochthonous muscle fiber tracts are also in contact with the ribs.

The **middle layer** of the thoracolumbar fascia arises from the costal processes of the lumbar vertebrae. It extends between the ventrolateral and autochthonous musculature. From this layer the internal oblique and transverse muscle of abdomen arise.

The **posterior layer** of the thoracolumbar fascia arises from the spinous processes, the iliac crest and from the costal angles. It projects cranially and continues into the nuchal fascia. The posterior and inferior serratus muscle and latissimus dorsi muscle project from the posterior layer to reach their particular insertion points.

6.2.7 Medial Column – Straight System

**1 Spinalis (muscle)** (skips at least 1 vertebra)

- Spinalis capitis (muscle) (1a): Runs from the spinous processes of the caudal cervical vertebrae to the superior nuchal line
- Spinalis cervicis (muscle) (1b): Runs from the spinous processes of the cranial thoracic vertebrae to the spinous processes of the medial cervical vertebrae
- Spinalis thoracis (muscle) (1c): Runs from the spinous processes of the cranial lumbar vertebrae to the spinous processes of the medial thoracic vertebrae

2 Intertransverse muscle

Posterior cervical intertransverse muscles (2a): Run between the transverse

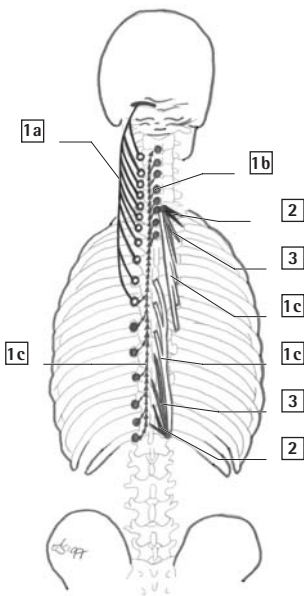
processes of adjacent cervical vertebrae
Medial lumbar intertransverse muscles (2b): Run from the accessory processes of a lumbar vertebra to the mamillary processes of the next lumbar vertebra below

3 Interspinal muscle

A distinction is drawn between: **Cervical** (3a), **thoracic** (3b) and **lumbar** (3c) interspinal muscles.

They run in pairs from the spinous processes of a vertebra to the spinous processes of the next adjacent vertebra without skipping a segment. These muscles are not present in the medial thoracic area of the spine

6.2.8 Medial Column – Angular System

**1 Semispinalis muscle**

(skips approximately 5 segments)

- **Semispinalis capitis (muscle) (1a):**
Runs from the transverse processes of the caudal cervical and cranial thoracic vertebrae to the superior and inferior nuchal line
- **Semispinalis cervicis (muscle) (1b):**
Runs from the transverse processes of the thoracic vertebrae to the spinous processes of higher lying thoracic and cervical vertebrae
- **Semispinalis thoracis (muscle) (1c):**
Runs from the transverse processes of the lower thoracic vertebrae to the spinous processes of the upper thoracic vertebrae; 1b and 1c cannot be distinguished from each other

2 Rotatores (muscles)

The rotatores muscles are located in the cervical, thoracic and lumbar areas. Distinguished are:

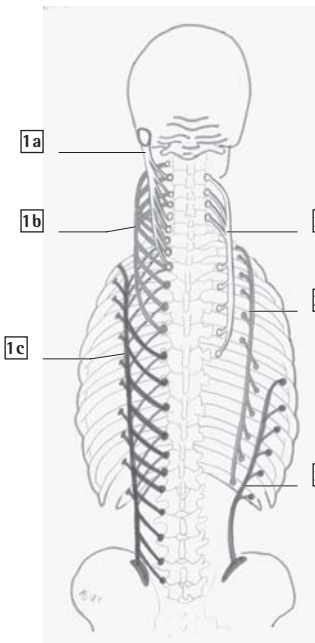
- Rotatores brevis muscles**, which run between adjacent vertebrae, and
- rotatores longus muscles**, which skip 1 segment each time. Originating from transverse processes, the rotatores muscles project to higher spinous processes

3 Multifidi muscles

(skip up to 3 segments)

The multifidi muscles run just as the rotatores muscles, but skip a larger number of vertebrae.

6.2.9 Lateral Column – Straight System



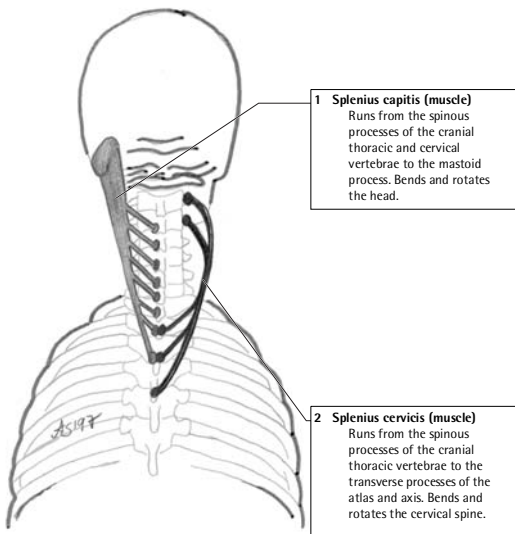
1 Longissimus muscle (medial from 2)

- **Longissimus capitis (muscle)** (1a): Projects from the transverse processes of the cervical and thoracic vertebrae to the mastoid process
- **Longissimus cervicis (muscle)** (1b): Projects from the transverse processes of the thoracic vertebrae to the transverse processes of the cervical vertebrae
- **Longissimus thoracis (muscle)** (1c): Projects from the sacral bone and transverse processes of the lumbar vertebrae to all ribs and to the transverse processes of the higher lying lumbar and thoracic vertebrae

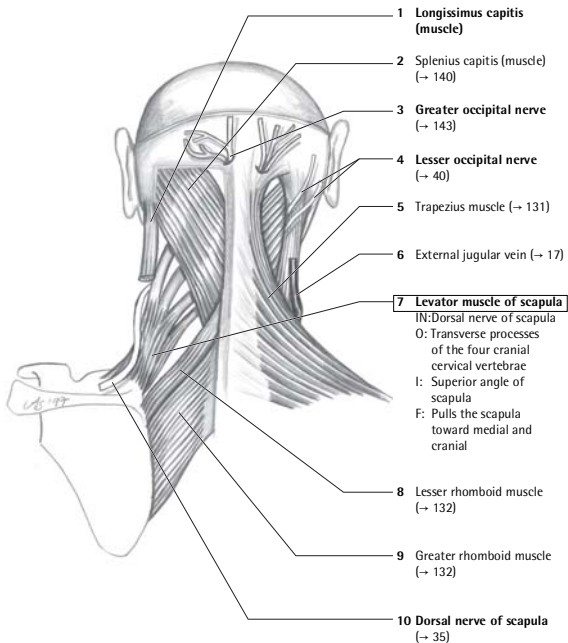
2 Iliocostalis (muscles)

- **Iliocostalis cervicis (muscle)** (2a): Projects from the cranial ribs to the transverse processes of the medial cervical vertebrae
- **Iliocostalis thoracis (muscle)** (2b): Projects from the lower ribs to the upper ribs
- **Iliocostalis lumborum (muscle)** (2c): Projects from the sacral bone and the iliac crest to the caudal ribs

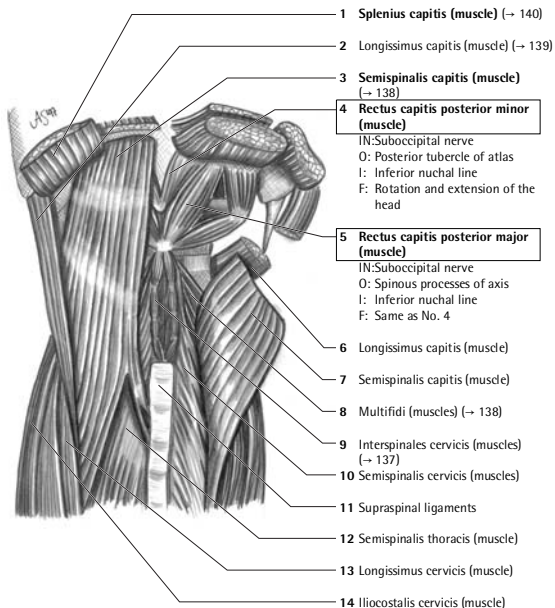
6.2.10 Lateral Column – Angular System



6.2.11 Musculature of Back of Neck I

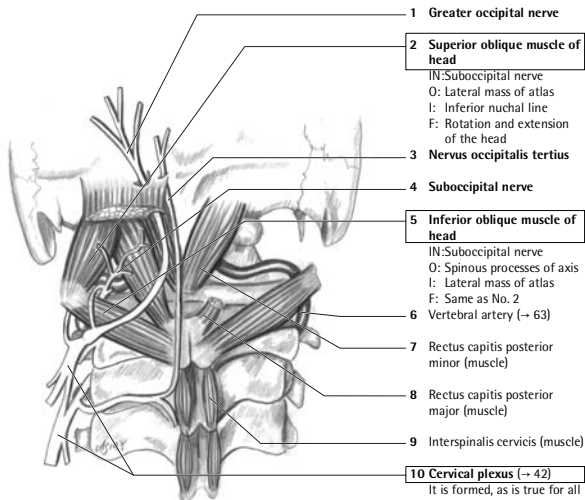


6.2.12 Musculature of Back of Neck II



The **short muscles of back of neck** consist of: Superior oblique muscle of head, inferior oblique muscle of head, rectus capitis posterior minor (muscle), rectus capitis posterior major (muscle) and rectus capitis lateralis (muscle).

6.2.13 Musculature of Back of Neck III /
Nerves of Back of Neck



1 Greater occipital nerve

2 Superior oblique muscle of head

IN: Suboccipital nerve
O: Lateral mass of atlas
I: Inferior nuchal line
F: Rotation and extension of the head

3 Nervus occipitalis tertius

4 Suboccipital nerve

5 Inferior oblique muscle of head

IN: Suboccipital nerve
O: Spinous processes of axis
I: Lateral mass of atlas
F: Same as No. 2

6 Vertebral artery (→ 63)

7 Rectus capitis posterior minor (muscle)

8 Rectus capitis posterior major (muscle)

9 Interspinalis cervicis (muscle)

10 Cervical plexus (→ 42)

It is formed, as is true for all other plexuses, by the ventral branches of the spinal nerves. The cervical plexus originates from the segments C1-C4/5. Its branches are the cervical ansa, the phrenic nerve, the lesser occipital nerve, the great auricular nerve, the transverse cervical nerve and the supraclavicular nerve.

6.2.14 Vertebral Artery



The vertebral artery (→ 143) is the first departing branch of the subclavian artery and projects, surrounded by the anterior scalenus muscles (→ 36) and longus colli muscle, in a cranial direction. It traverses the foramen of the transverse process at the 6th cervical vertebra and projects towards the atlas.

After leaving the transverse foramen at the most superior cervical vertebra, it makes a turn and projects in a medial direction along the vertebral groove of atlas. It traverses the atlantooccipital membrane and then enters the subarachnoid space. After entering the interior of the cranium through the great foramen, it joins with the vertebral artery from the opposite side, to form the basilar artery. Via the posterior cerebral arteries, the basilar artery is interconnected with the arterious circle of cerebrum (circle of Willis) (→ 63)