Central nervous system – general overview
Vision (optic nerve)

Smell (olfactory nerve)

Balance (vestibulocochlear nerve, vestibular branch)

Hearing (vestibulocochlear nerve, cochlear branch)

Taste (facial nerve)
Muscle spindle

- Alpha motor neuron
- Gamma motor neuron
- Ia and II afferents
- Annulospiral endings
- Working muscle
- Muscle spindle

Golgi tendon organ

- Working muscle
- Ib fiber
- Tendon sensor
"I can't see anything."

- Language production
- Motor cortex, left hand
- Visual cortex, left half of visual field
- Ball is recognized

Commissurotomy
BLOOD SUPPLY

OF THE CENTRAL NERVOUS SYSTEM
Overview of the arterial supply to the brain

The four anatomical divisions of the internal carotid artery

Overview of the arterial supply to the brain
Projection of the circle of Willis onto the base of the skull
Variants of the circle of Willis
Stenoses and occlusions of arteries supplying the brain
Anatomical basis of subclavian steal syndrome
Arteries at the base of the brain
Terminal branches of the middle cerebral artery on the lateral cerebral hemisphere
Course of the middle cerebral artery in the interior of the lateral sulcus
Branches of the anterior and posterior cerebral arteries on the medial surface of the cerebrum
Distribution areas of the main cerebral arteries
Distribution of the three main cerebral arteries in transverse and coronal sections
Arteries of the brainstem and cerebellum
Relationship of the principal dural sinuses to the skull
Structure of a dural sinus, shown here for the superior sagittal sinus
Dural sinuses at the skull base
Superficial veins of the brain (superficial cerebral veins)
Basal cerebral venous system
Deep cerebral veins

- Anterior vein of septum pellucidum
- Internal cerebral vein
- Basal vein
- Posterior vein of corpus callosum
- Superior cerebellar veins
- Veins of caudate nucleus
- Interventricular foramen
- Superior thalamo-striate vein
- Superior choroidal vein
- Lateral vein of lateral ventricle
- Great cerebral vein
- Medial vein of lateral ventricle
- Straight sinus
- Confluence of the sinuses
Extracerebral hemorrhages
Sites of berry aneurysms at the base of the brain
Basal cerebral venous system
Cardinal symptoms of occlusion of the three main cerebral arteries

<table>
<thead>
<tr>
<th>Vascular territory</th>
<th>Neurological symptoms</th>
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<tbody>
<tr>
<td>Anterior cerebral artery</td>
<td>Hemiparesis (with or without hemisensory deficit)</td>
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<td></td>
<td>Bladder dysfunction</td>
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<tr>
<td>Middle cerebral artery</td>
<td>Hemiparesis (with or without hemisensory deficit) mainly affecting the arm and face (Wernicke-Mann type)</td>
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<tr>
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<td>Aphasia</td>
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<tr>
<td>Posterior cerebral artery</td>
<td>Hemisensory losses</td>
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<td>Hemianopia</td>
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Segmental arteries perfusing the spinal cord arise from the following sources:

- in the cervical portion from vertebral, inferior thyroid, deep cervical, and ascending cervical arteries
- in the thoracic portion from superior (supreme) intercostal, and posterior intercostal arteries
- in the lumbar portion from the iliolumbar, and lumbar arteries
- in the sacral portion from the lateral sacral arteries
Each medullary artery gives rise to anterior and posterior medullary segmental arteries; these vessels may terminate within the roots or may proceed towards the surface of the spinal cord.
Arterial blood supply to the spinal cord
Visual pathway (overview)
Overview of the visual pathway
Representation of each visual field in the contralateral visual cortex
Visual field defects (scotomata) and their location along the visual pathway
Auditory pathway (overview)
Afferent auditory pathway of the left ear
Thank you very much.

Tatra National Park

Phot. J. Urbaniak