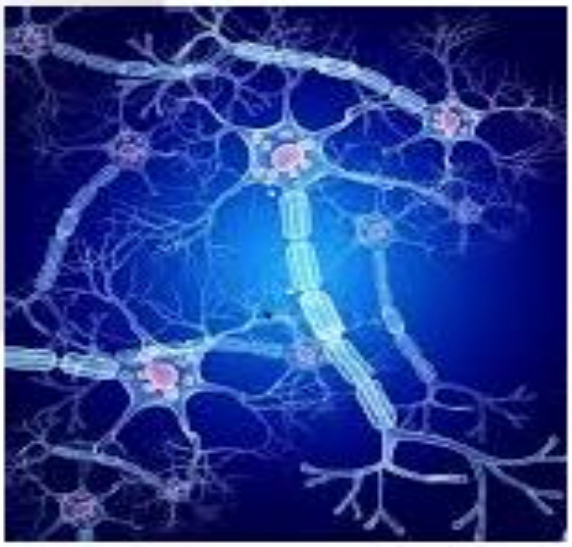
Джолдубаев С.Дж., Нуруев М.К.

НЕРВНАЯ СИСТЕМА

(учебно-методическое пособие)



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Учебное пособие содержит рисунки и таблицы с обобщенными и систематизированными данными о нервной системе. Пособие составлено с включением большого количества схем и рисунков по всем разделам нервной системы. Оформленные таблицы и схемы пособия обеспечивают оптимальное усвоение материала студентами. Все анатомические термины даны в соответствии с Международной анатомической номенклатурой. Учебное пособие рекомендуется для аудиторной и внеаудиторной самостоятельной работы студентами и может быть использовано как краткий «репетиториум» при изучении нервной системы человека в курсах анатомии медицинских вузов.

The textbook contains generalized and systematized data on the nervous system in the form of figures and tables. The manual is composed with the inclusion of a large number of schemes and figures on all sections of the nervous system. Formalized tables and schemes of the manual provide optimal assimilation of the material by students. All anatomical terms are given in accordance with the International Anatomical Nomenclature. The textbook is recommended for classroom and extracurricular independent work of students and can be used as a brief “tutorium” in the study of the human nervous system in the anatomy courses of medical schools.

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NERVOUS SYSTEM

Spinal cord: macrostructure, topography of gray and white matter, membranes.

The nervous system consists of central and peripheral parts. The central nervous system (CNS) consists of those parts that are enclosed in the cranial cavity and spinal canal, and the peripheral nervous system consists of nodes and bundles of fibers connecting the central nervous system with sensory organs and various effectors (muscles, glands, etc.). The central nervous system, in turn, is divided into the brain, located in the skull, and the spinal cord enclosed in the spine. The peripheral nervous system consists of cranial and spinal nerves.

In addition, the autonomic nervous system is distinguished, which also has central and peripheral divisions. The autonomic nervous system is a collection of nerves and nerve nodes through which the heart, blood vessels, internal organs, glands, and so on are innervated. The internal organs receive a double innervation from the sympathetic and parasympathetic parts of the autonomic nervous system. These two departments have excitatory and inhibitory effects, determining the level of organ activity.

CENTRAL (CNS)
Spinal cord
Segments:
cervical CI-CVIII
thoracic TI-TXII
lumbar LI-LV.
sacral SI-SV
coccygeal Col-Coll
Cerebrum
Forebrain
Telencephalon
Two hemispheres
Diencephalon
Epithalamus
Thalamus
Hypothalamus
Methalamus
Subthalamus
Midbrain
Peduncles of the brain
Roof of the midbrain
Rhombencephalon
Hindbrain
Pons
Cerebellum
Two hemispheres
Vermis
Medulla oblongata

PERIPHERAL (PNS)
Nodes: Spinal
Cranial
Autonomic
Spinal nerves (31)
Cervical (8)
Thoracic (12)
Lumbar (5)
Sacral (5)
Coccygeal (1)
Plexuses
Cervical (CI-IV)
Brachial (CV-VIII-TI)
Lumbar (LI-IV)
Sacral (LIV-V-SI-IV)
Coccygeal (SV-Col)
Cranial nerves (12)
Olfactory (l)
Optic (II)
Oculomotor (III)
Trochlear (IV)
Trigeminal (V)
Abducens (VI)
Facial (VII)
Vestibulocochlear (VIII)
Glossopharyngeal (IX)
Vagus (X)
Accessory (XI)
Hypoglossal (XII)

SOMATIC (animal)

- Central section
- Peripheral section

Sympathetic part

* Central part

lateral intermediate gray matter (in the lateral columns (CVIII, П-TXI, LI-LII) of the spinal cord)

* Peripheral part

Nerve fibers and nerves going from neurons of the intermediate gray matter to the nodes of the sympathetic trunk and autonomic plexuses

Right and left sympathetic trunks

Connecting branches

Node of the autonomic plexuses in the abdominal cavity and pelvic cavity

Nerves going to the organs from these plexuses

Sympathetic fibers in the somatic nerves

Parasympathetic part

Central part

VEGETATIVE (autonomous)

Cranial section:

parasympathetic nuclei of the oculomotor (III), facial (VII), glossopharyngeal (IX), vagus (X) nerves

Sacral section:

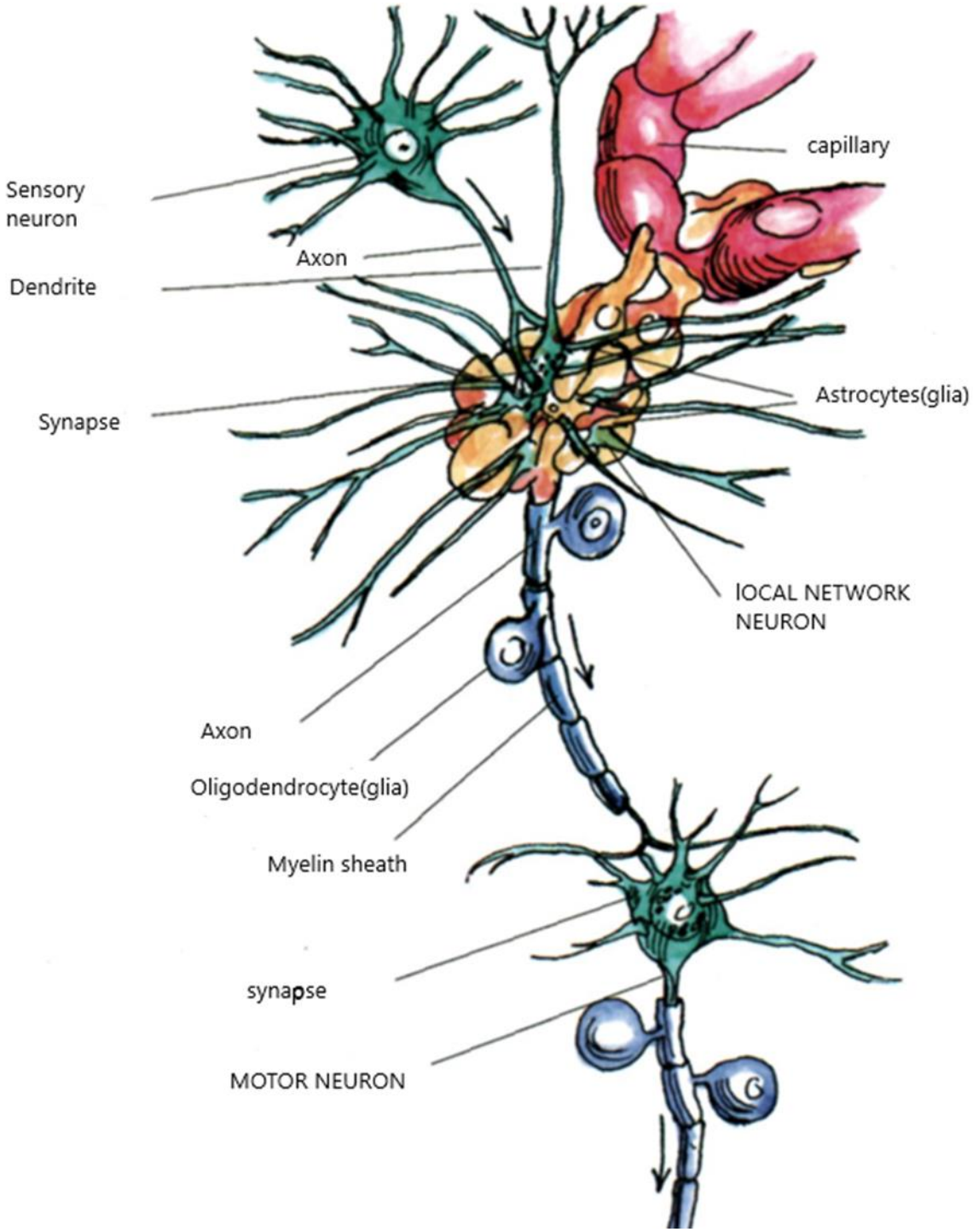
parasympathetic nuclei of the II, III, IV sacral segments

Peripheral part

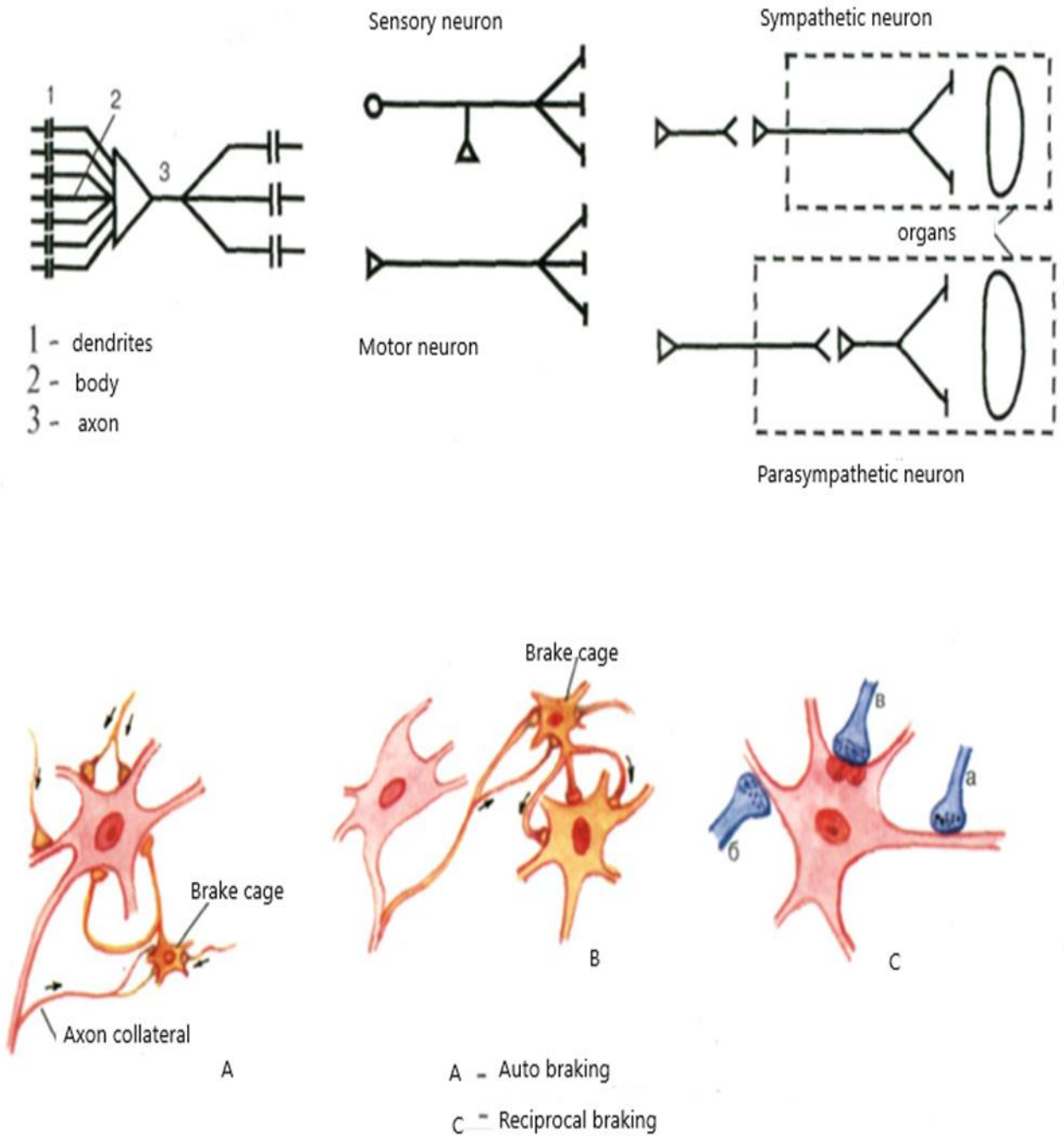
Parasympathetic fibers of the oculomotor (III), facial (VII), glossopharyngeal (IX), vagus (X) nerves; ciliary, pterygopalatine, submandibular, sublingual, auricular and other nodes and their branches

Splanchnic pelvic nerves,

parasympathetic pelvic nodes and their branches



Pig.1. Neural network



Pig.2. Anatomical and functional structure of a neuron