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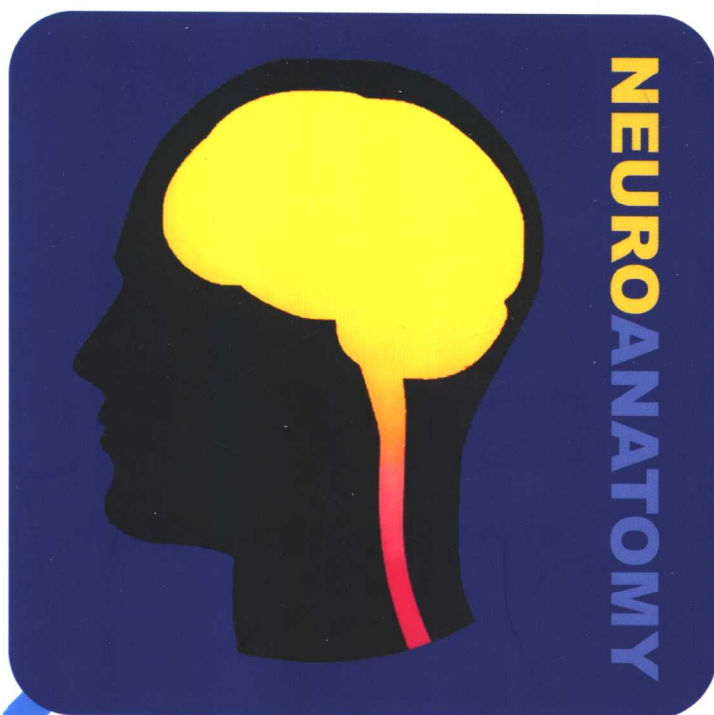
High-Yield **NEUROANATOMY**

2

神经解剖学

[美]詹姆斯·D·菲克斯◆著
(James D. Fix)

（第2版）



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神经解剖学

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译者前言

《美国医师执照考试高效复习丛书》由 Lippincott Williams & Wilkins 公司出版,为参加美国医师行医执照考试(United States Medical Licensing Examination, USMLE)所用的培训教材,其主要读者对象是美国国内准备参加考试的医学生或毕业生和有志获取美国行医执照的外国医生或医学生。为了满足我国广大医学生和医生的需求,适应双语教学的需要,中信出版社和辽宁教育出版社委托首都医科大学组织学校及各附属医院相关学科的专家教授翻译了这套丛书。

丛书共 17 个分册,涵盖 USMLE 第一阶段(Step 1)基础医学和第二阶段(Step 2)临床医学的主要课程。丛书复习的高效性主要体现在:内容高度概括,重点突出,利于考生抓住重点,快速记忆;内容选择针对性强,用较少的时间便可掌握更多更重要的知识。各分册均由相关专业的专家教授编写,使丛书内容更具有权威性。

丛书的主要特点:(1)编排新颖、图文并茂:既有基础知识要点的分类介绍,又有以疾病为核心的综合复习,同时还有相关学科的横向比较和归纳;该丛书收集了大量丰富多彩的图片,使内容直观易懂;运用了大量表格对重要概念和问题进行比较、归纳和总结,便于快速理解和记忆。(2)理论联系实际,基础与临床结合:基础医学部分在讨论基础医学知识的同时,设有“与临床联系”等类似内容。临床医学部分在学习临床理论的同时,给出各种“病例分析”,使理论与实践紧密结合。这对医学教育的思维模式是一种创新。(3)丛书出版采取中英文合出的形式,即前面是中文,后面是英文。

丛书既可作为教学材料,又可供学生课后参考,适应于医学院校开展双语教学;也可作为我国执业医师资格考试复习的参考书,以及有志于获取美国行医执照的中国医学生和医生参考。

需要说明的是,书中部分图片是引用其他作者的,因在英文部分均有交代,在中文部分未列出。

Preface

The second edition of *High-Yield Neuroanatomy* is still neuroanatomy at its irreducible minimum, containing most, if not all, of the national board themes. The sole purpose of the book is to get you through the nervous system topics covered on the United States Medical Licensing Examination (USMLE) Step 1. Substantial additions have been made to accommodate student requests and suggestions.

NEW TO THIS EDITION

- Mini-atlas of nuclear magnetic imaging scans
- Carotid and vertebral digital subtraction angiography
- Nuclear magnetic angiography
- Additional figures of cranial nerve function components
- Chapter on aphasia, apraxia, and dysprosody
- Index

TO THE STUDENT

To make the most of this book, study the illustrations, computed tomography scans, and magnetic resonance images carefully, and read the legends. Many board-type questions come from this source. In fact, the answers to at least 20 common USMLE questions are found within this preface. Finally, remember these tips as you scan the chapters:

Chapter 1: The mini-atlas provides you with the essential examination structures labeled on computed tomography scans and magnetic resonance images.

Chapter 2: Cerebrospinal fluid pathways are well demonstrated in Figure 2-1. Cerebrospinal fluid is produced by the choroid plexus and absorbed by the arachnoid villi that jut into the venous sinuses.

Chapter 3: The essential arteries and the functional areas that they irrigate are shown. Study the carotid and vertebral angiograms and the epidural and subdural hematomas in computed tomography scans and magnetic resonance images.

Chapter 4: The neural crest and its derivatives, the dual origin of the pituitary gland, and the difference between spina bifida and the Arnold-Chiari malformation are presented. Study the figures that illustrate the Arnold-Chiari and Dandy-Walker malformations.

Chapter 5: What is the difference between Lewy and Hirano bodies? Nerve cells contain Nissl substance in their perikarya and dendrites, but not in their axons. Remember that Nissl substance (rough endoplasmic reticulum) plays a role in protein synthesis. Study Figure 5-2 on the localization and prevalence of common brain and spinal cord tumors. Remember that, in adults, glioblastoma multiforme is the most common brain tumor, followed by astrocytoma and meningioma. In children, astrocytoma is the most common brain tumor, followed by medulloblastoma and ependymoma. In the spinal cord, ependymoma is the most common tumor.

Chapter 6: The adult spinal cord terminates (conus terminalis) at the lower border of the first lumbar vertebra. The newborn's spinal cord extends to the third lumbar vertebra. In adults, the cauda equina extends from vertebral levels L-2 to Co.

Chapter 7: The tracts of the spinal cord are reduced to four: corticospinal (pyramidal), dorsal columns, pain and temperature, and Horner's. Know them cold.

Chapter 8: Study the eight classic national board lesions of the spinal cord, Four heavy hitters are: Brown-Séquard syndrome, B₁₂ avitaminosis (subacute combined degeneration), syringomyelia, and amyotrophic lateral sclerosis (Lou Gehrig's disease).

Chapter 9: Study the transverse sections of the brain stem, and localize the cranial nerve nuclei. Study the ventral surface of the brain stem, and identify the exiting and entering cranial nerves. On the dorsal surface of the brain stem, identify the only exiting cranial nerve, the trochlear nerve.

Chapter 10: Cranial nerve (CN) V-1 is the afferent limb of the corneal reflex. CN V-1, CN V-2, CN III, CN IV, CN VI, and the postganglionic sympathetic fibers are all found in the cavernous sinus.

Chapter 11: Figure 11-1 shows the auditory pathway. What are the causes of conduction and sensorineural deafness? Describe the Weber and Rinne tuning fork tests. Remember that the auditory nerve and the organ of corti are derived from the otic placode.

Chapter 12: This chapter describes the two types of vestibular nystagmus: postrotational and caloric (COWS acronym). Vestibulo-ocular reflexes in the unconscious patient are also discussed (see Figure 12-3).

Chapter 13: This chapter on the cranial nerves is pivotal. It spawns more neuroanatomy examination questions than any other chapter. Carefully study all of the figures and legends. The seventh cranial nerve deserves special consideration (see Figures 13-3 and 13-4). Understand the difference between an upper motor neuron and a lower motor neuron (Bell's palsy).

Chapter 14: The three most important lesions of the brain stem are occlusion of the anterior spinal artery (Figure 14-1), occlusion of the posterior inferior cerebellar artery (Figure 14-1), and medial longitudinal fasciculus syndrome (Figure 14-2). Weber's syndrome is the most common midbrain lesion (Figure 14-3).

Chapter 15: Figure 15-1 shows the most important cerebellar circuit. The inhibitory γ -aminobutyric acid (GABA)-ergic Purkinje cells give rise to the cerebellothalamic tract. What are mossy and climbing fibers?

Chapter 16: Figure 16-1 shows everything you need to know about what goes in and what comes out of the thalamus. Know the anatomy of the internal capsule; it will be on the examination. What is the blood supply of the internal capsule (stroke)?

Chapter 17: Know the lesions of the visual system. How are quadrantanopias created? There are two major lesions of the optic chiasma. Know them! What is Meyer's loop?

Chapter 18: The important anatomy of the autonomic nervous system is clearly seen in Figures 18-1 and 18-2.

Chapter 19: Figures 19-1 and 19-2 show that the paraventricular and supraoptic nuclei synthesize and release antidiuretic hormone and oxytocin. The suprachiasmatic nucleus receives direct input from the retina and plays a role in the regulation of circadian rhythms.

Chapter 20: Bilateral lesions of the amygdala result in Klüver-Bucy syndrome. Recall the triad hyperphagia, hypersexuality, and psychic blindness. Memory loss is associated with bilateral lesions of the hippocampus. Wernicke's encephalopathy results from a deficiency of thiamine (vitamin B₁). Lesions are found in the mamillary bodies, thalamus, and midbrain tegmentum (Figure 20-3). Know the Papez circuit, a common board question.

Chapter 21: Figure 21-3 shows the circuitry of the basal ganglia and their associated neurotransmitters. Parkinson's disease is associated with a depopulation of neurons in the substantia nigra. Huntington's disease results in a loss of nerve cells in the caudate nucleus and putamen. Hemiballism results from infarction of the contralateral subthalamic nucleus.

Chapter 22: In this chapter, the pathways of the major neurotransmitters are shown in separate brain maps. Glutamate is the major excitatory transmitter of the brain; GABA is the major inhibitory trans-

mitter. Purkinje cells of the cerebellum are GABA-ergic. In Alzheimer's disease, there is a loss of acetylcholinergic neurons in the basal nucleus of Meynert. In Parkinson's disease, there is a loss of dopaminergic neurons in the substantia nigra.

Chapter 23: This chapter describes the cortical localization of functional areas of the brain. How does the dominant hemisphere differ from the nondominant hemisphere? Figure 23-4 shows the effects of various major hemispheric lesions. What symptoms result from a lesion of the right inferior parietal lobe? What is Gerstmann's syndrome?

Chapter 24: This chapter describes apraxia, aphasia, and dysprosody. Be able to differentiate Broca's aphasia from Wernicke's aphasia. What is conduction aphasia? This is board-relevant material.

I wish you good luck.

James D. Fix

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I wish to thank my medical students, colleagues, and members of the staff of Lippincott Williams & Wilkins for their valuable comments, suggestions, and help. Thanks also go to Elizabeth Nieginski for her editorial direction.

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