

CONTENTS

1. Introduction to Speech-Language Neurology, 1
2. Organization of the Nervous System I, 9
3. Organization of the Nervous System II, 36
4. Neuronal Function in the Nervous System, 62
5. Neurosensory Organization, 79
6. Neuromotor Control of Speech, 93
7. The Cranial Nerves, 118
8. Clinical Speech Syndromes of the Motor Systems, 135
9. Central Language Mechanisms and Learning, 153
10. Adult Disorders of Language, 175

11. Pediatrics: The Developing Brain, 195
12. Pediatric Clinical Speech Syndromes, 210
13. Pediatric Disorders of Language, 224

Appendix A: Medical Conditions Related to Communication Disorders, 243

Appendix B: Bedside Neurologic Examination, 246

Appendix C: Screening Neurologic Examination for Speech-Language Pathology, 247

Glossary, 249

Index, 261

CHAPTER OUTLINE

1. The Neurology of Language
Historic Issues: Development of Speech-Language Pathology as a Brain Science, 2
Current Language Models, 3
Global View, 4

The 2014 Curriculum
Neurology I, 5
Directions and Plans, 4
How to Study, 5

KEY TERMS

ASHA	axonal	plasticity
axons	brain waves	posterior
axon hillock	EMG	radial
axonits	EMMA	STC/CT
axonal	EMT	superior
axonal fiber tracts	infarct	traumatic brain injury (TBI)
axometry	localization of lesions	ventral
Capit Yergachev	Nova Chronica	radiology
cellular	Stroke Generator	
clinical neurology	Stroke Test Score	

WHY NEUROLOGY?

The 1970s were labeled by the US Congress as the decade of the brain. In 1976 was the year of the Americans with Disabilities Act (ADA). In 2010 American Speech-Language-Hearing Association (ASHA) members learned about the reauthorization of the Individuals with Disabilities Education Act (IDEA). Since the inception of the federal law to help and protect Americans who have a variety of disabilities, including communication and hearing disorders, ASHA students and clinical students have undergone major changes as well. A tremendous expansion of knowledge has occurred in the neurosciences, including neuronal complexities of the types and severity of disorders noted by all speech-language pathologists (SLPs), from the school-based SLP and educational audiologist to the hospital-based cerebral SLP professional. ASHA has recognized their advances in neuroscience

by realizing that an SLP or audiologist must have an expanded knowledge of neuroscience and physiology to remain a viable member of either the individualized education program (IEP) or the interdisciplinary team (IDT). That is why academic and clinical standards for all SLPs and audiologists underwent a major change in the early 21st century.

For the student of speech-language pathology and audiology, these governmental reform acts and advances in neuroscience have played a significant role in forming the current academic and clinical standards used by ASHA. The new certification standards required as of July 2014 mandate particular knowledge and skills for students to be prepared to serve a variety of communication and hearing disorders in children and adults. From an undergraduate general education which is now required to include biology and physical sciences, to the graduate students in-depth study of stroke