Instructor's Resource Manual and Test Bank

for

Communication and Communication Disorders

A Clinical Introduction

Fourth Edition

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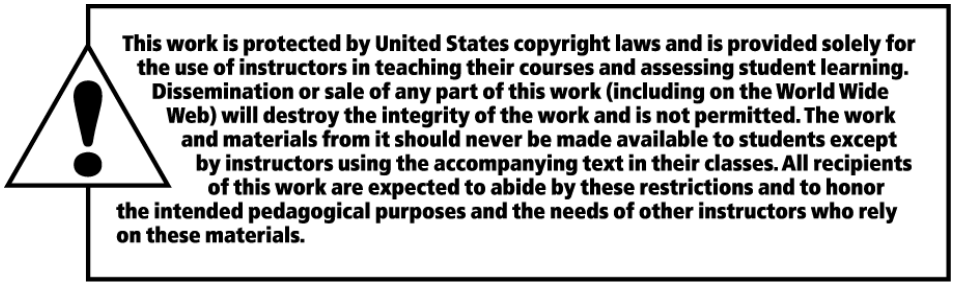

CONTENTS

General Features

The Structure of the Book

The opening and closing chapters introduce the fields of audiology and speech-language pathology and were written to pique students' interest in these dynamic professions. The remaining chapters cover basic information on speech, language, hearing, and disorders that affect these domains. Liberal use of clinical examples helps to bring basic concepts to life. We have ordered the chapters so that relevant foundational information precedes the chapters covering specific disorders. However, chapters are sufficiently independent that other orderings may be used when teaching.

Case examples

Within each chapter, we have employed several instructional devices to assist students with the book's content and, at the same time, develop an appreciation for the clinical applications of this information. In addition to the use of chapter previews and key words, we have made liberal use of case examples within the text. For convenience, the location and nature of each case example used in the text is also provided in this instructor's manual.

Key words

Glossary words are bolded within the text of the book and are provided at the end of each chapter summary in this instructor's guide. These are words that students should understand by the end of the chapter, and could be used in exam items. Italicized words are also used within the text to highlight the professional meaning of a word that is in common use, or for words that are relevant to a discussion but do not reflect a core concept (e.g., a word of historical use like *dysphemia*).

Text boxes

Each chapter contains a number of highlighted text boxes at the margins. These contain either key concepts for a section of text or thought exercises for the student. Any of these could serve to prompt exam questions as well.

Clinical Problem Solving

Audiology and Speech-Language Pathology are, by nature, fields in which memorization of facts is not enough for success. These professions require the application of knowledge to real-life problems. For this reason, each chapter ends with a section called Clinical Problem Solving, which provides an opportunity for students to apply information covered in the chapter to a clinical case. The cases typically integrate multiple aspects of a chapter, but can be answered directly from information provided within the chapter with little or no inferences necessary (other than fitting old information to a new problem). We have taken this approach because beginning students often need a bridge between memorization and the application of new information.

Popular Readings

At the end of each of the chapters concerning disorders, we have included a listing of readings from the popular literature. We have provided an example of how these books can be

used for a graded writing assignment at the end of this manual.

Sample Exam Questions

Sample multiple choice and short answer questions are provided at the end of each chapter summary. These questions draw directly from text material. Additional text-based questions could be drawn from the key words as well.

CHAPTER 1: INTRODUCTION TO THE PROFESSIONS OF AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY

Core Concepts

Normal Communication ……pages 2-5

- A look at some real-life examples of normal communication illustrates that language and communication can take many forms.

Cases of Normal Communication:

Case 1: Context helps determine the meaning associated with sounds produced by an 18 month old child.

Case 2: All communication is not necessarily effective, as seen in the example of a professor with a poor lecture style.

Case 3: Communication, and language in particular, is not restricted to the auditory-oral modality. Sign language uses visual-manual modalities.

Case 4: Written language is an alternate mode of communication.

- Normal communication encompasses verbal and nonverbal elements.
- Nonverbal elements include posture, facial expression, voice quality, and gestures.
- Many of the nonverbal elements of communication are culturally regulated.

Six Individuals with Communication Impairment ……pages 5-8

Clinical Cases (names in the book have been changed):

Beth Feldman is a student teacher who developed bilateral vocal nodules.

Jim Fields is a forty-three-year-old with the beginning signs of noise-induced hearing loss.

Rudolpho Torres was born with a bilateral cleft lip and palate, which increases the risk of hearing and articulation disorders.

Bruce Murrich is a retired executive who developed right-sided paralysis and aphasia following a stroke.

Devon Douglas was seventeen years of age when he was diagnosed with a language-based learning disability.

Mary Kim is a five year old girl with hereditary hearing loss who uses a cochlear implant to assist hearing

Classification of Communication Disorders……...…….……pages 8-10

- Communication and its disorders can be considered with reference to the domains of language, speech, and hearing.

- Within each of these domains are areas which can be used to differentiate types of communication disorders. These are:
- Language: Developmental and acquired.
- Speech: Articulation, voice, and fluency.
- Hearing: Conductive and sensorineural.

Personal Stories about Communication Disorders…….pages 10-11

- Pathography is a literary genre that includes recounts of personal stories of individuals living with illness or disability. This book includes readings from the popular literature involving communication disorders at the end of each chapter.

Careers in Communication Disorders ……pages 12-21

- The professionals who provide services for the remediation of communication disorders are audiologists and speech-language pathologists.
- The professional organization for audiologists and speech-language pathologists is the American Speech-Language-Hearing Association (ASHA).
- The demographics of the professions reflect the diversity of the country.

Clinical Careers ……pages 12-18

- Thirty-five clinicians provide insights into why they chose their profession, what personality traits they saw as important to their job, and what maintained their interest in the field over the years.

Research Careers…….....pages 18-21

- Seven professionals provide information concerning why they elected to include research in their careers and the importance of research to the professions.

Clinical Problem Solving……..….pages 21-22

Students are asked to identify components of impaired communication and the professionals likely to assist with those components, using the case of Bonnie, a child with a hearing loss and speech-language delay.

Key words

articulation	conductive hearing loss	speech
audiologist	hearing	speech-language pathologist
audiology	language	speech-language pathology
communication	sensorineural hearing loss	voice

Sample Exam Questions

Multiple Choice:

1. Communication disorders
    a. primarily affect older adults.
    b. appear after a period of normal development.
    c. only affect children's education.
    d. affect individuals across the lifespan.

2. The term "language"
    a. includes facial expressions during speech.
    b. does not include understanding of spoken words.
    c. refers to the coding of ideas into a system of symbols.
    d. does not include writing.

3. A person's culture
    a. can increase the risk of communication disorders.
    b. can dictate the rules governing nonverbal communication.
    c. can make it difficult to learn language.
    d. all of the above

4. Developmental disorders
    a. appear during childhood.
    b. get progressively worse over time.
    c. only occur in people with normal hearing.
    d. lead to acquired disorders.

5. Speech
    a. refers to the use of a symbol system for communication
    b. refers to meaningful sounds that are produced by movement of the articulators
    c. is the primary function of the larynx
    d. refers to the use of language.

6. Which of the following is not a communication disorder?
    a. voice disorder.
    b. swallowing disorder.
    c. fluency disorder.
    d. articulation disorder.

7. Careers in speech-language pathology or audiology include
    a. opportunities for research.
    b. work in hospital or school settings.
    c. work with individuals across the lifespan.
    d. all of the above.

8. Which of the following is not a type of hearing loss?
    a. sensorineural.
    b. blocked.
    c. conductive.
    d. noise-induced.

9. Sign language is a considered a language because
    a. it uses hand movements instead of speech sounds.
    b. it can be learned.
    c. it represents meaning through a system of symbols and grammatical rules.
    d. it can only be used by people with a hearing loss.

10. A literary genre that describes personal experience with disease or injury is referred to as
    a. the anatomy of an illness.
    b. pathology.
    c. pathological autobiography.
    d. pathography.

Short Answer:

- Provide three examples of elements of communication that do not involve speech.
- How are speech and language different?
- Give examples of two speech disorders. What makes one different from the other?
- Can infants communicate? If so how, if not, why not?

Core Concepts

Clinical Case:
Alicia is a three-year-old with Down Syndrome who received a team evaluation to determine how the genetic disorder was affecting her development.

The Vocal Mechanism ……..pages 25-34

The Respiratory System ……...……...pages 25-26

- The musculo-skeletal thorax can expand its size by muscle contraction.
- Thoracic expansion results in a decrease in density of the air molecules within the lungs. Inspiration occurs as air rushes in to the lungs.
- On expiration, the thorax becomes smaller as muscles relax, resulting in greater density than atmospheric air, and pulmonary air rushes out.

The Phonatory System ……..pages 28-31

- The larynx is responsible for protection of the airway and production of sound.
- Structures of the larynx include the cricoid cartilages, thyroid cartilage, arytenoid cartilages, and vocal folds.
- Sound is produced as pulmonary air forces the vocal folds apart and hits stationary air above the folds.
- Changes in the length and thickness of the vocal folds relate to changes in pitch.
- In general, the typical frequency of the voice is determined by vocal fold size.
- Increased vocal loudness can be regulated by changing the airflow through the vocal folds or increasing the muscular force that holds the vocal folds together.

The Resonance System …….pages 31-34

- Sound waves produced by the larynx are modified by other structures within the throat, mouth, and nasal cavities.
- Vocal resonance is heavily influenced by the posture of the mouth, which is determined by the positioning of the mandible and the configuration of the tongue within the oral cavity.
- Opening and closing the velopharyngeal port changes the resonance characteristics and contributes to the production of nasal and oral sounds.

- Hypernasality and denasality are forms of altered resonance.

Case example:
Alicia's evaluation reveals hypernasality, which may be the result of poor control of the velopharyngeal mechanism.

The Articulatory Mechanism ……..……...pages 34-36

- *The Tongue.* The posture of the tongue influences the resonance of the voice and is critical for the production of individual speech sounds.
- *The Lips.* Lip posture and movement changes sound generated by the vocal folds and helps form speech sounds.
- *The Mandible.* The normal speaker moves the mandible in quick synergistic movements with the lips and tongue during speech.
- *The Palate.* The arched structure of the hard palate contributes greatly to oral resonance. The soft palate elevates for oral sounds and lowers for nasal sounds.
- *The Teeth.* Lip-to-teeth or tongue-to-teeth contact allows for production of various consonant sounds.

Case example:
An oral-peripheral examination reveals structural deviation in Alicia's articulatory mechanism.

The Nervous System ……..….pages 35-37

Central Nervous System …….……....pages 37-42

- The brain is composed of the cerebrum and the cerebellum, each with two hemispheres.
- The hemispheres of the cerebrum are joined at the midline by the corpus callosum.
- The cerebral hemispheres can be further divided into four lobes, each of which is specialized for certain functions.
- The cortex, or gray matter on the surface of the cerebral hemispheres, contains the cell bodies of neurons.
- Subcortical gray matter includes the basal ganglia and thalamus.
- Areas important to communication include the primary auditory cortex in both hemispheres, and Wernicke's and Broca's areas in the left hemisphere. These are collectively found in the perisylvian region of the cerebrum.
- Brain development is affected by experience.
- Disorders can result from brain damage or altered brain development.

- Cerebral localization is the idea that certain skills are supported by specific brain regions.
- Paul Broca and Carl Wernicke presented case studies demonstrating localization of language to the left hemisphere in the 1800s.
- Modern concepts of brain function involve systems of interconnected brain regions that support particular skills.

Case application:
The genetic anomaly that leads to Down Syndrome affects the development of the brain.

Peripheral Nervous System ……..…….pages 43-44

- Twelve pairs of cranial nerves provide innervation for many speech structures.
- Thirty-one pairs of spinal nerves enter or exit the spinal cord to send or receive neural signals from the body.

Clinical Problem Solving ……page 44

The reader is asked to consider the case of Mr. Blades in terms of the biological mechanisms that might contribute to communication difficulties.

Key Words

arytenoid cartilages	cranial nerves	neurons	spinal nerves
aspiration	cricoid cartilage	occipital lobes	subglottal air pressure
basal ganglia	diaphragm	parietal lobes	sylvian fissure
brainstem	epiglottis	peripheral nervous system	temporal lobes
central nervous system	frontal lobes	perisylvian region	thalamus
cerebellum	glottis	pharynx	thyroid cartilage
cerebral localization	hemisphere	Rolandic fissure	velum
cerebrum	hypernasality	spinal cord	videoendoscopy
corpus callosum	mandible		

Sample Exam Questions

Multiple Choice:

1. Which of the following is NOT true?
    a. The larynx provides the respiratory drive for speech.
    b. The larynx helps protect the airway from food.
    c. The larynx is sometimes called the voice box.
    d. The larynx regulates the pitch of the voice.

2. The chest wall expands during breathing because
    a. air in the lungs pushes the lungs outwards.
    b. muscle contraction increases lung volume.
    c. the diaphragm pushes the lungs up.
    d. none of the above.

3. The diaphragm
    a. raises as it contracts so you take in a breath (inspiration).
    b. flattens as it contracts so you breathe in (inspiration).
    c. flattens as it contracts so you breathe out (expiration).
    d. relaxes so you take in a breath (inspiration).

4. The voice is
    a. created by contraction of the thyroid muscles.
    b. created by vibration of the pharynx.
    c. created by vibration of the vocal folds.
    d. is lost when structures within the mouth are changed due to disease.

5. The vocal folds are connected to which of the following?
    a. thyroid and arytenoid cartilages
    b. cricoid and arytenoid cartilages
    c. cricoid and thyroid cartilages
    d. hyoid bone and thyroid cartilage

6. Which of the following cannot be seen by looking in the mouth?
    a. the velum.
    b. the hyoid cartilage.
    c. the palate.
    d. the tongue.

7. Speech sounds
    a. are produced by movement of the articulators.
    b. have a nasal quality when the velum is relaxed.
    c. reflect the shape of the oral cavity.
    d. all of the above.

8. Which of the following is not the name of a lobe of the brain?
    a. occipital.
    b. parietal.
    c. temporal.
    d. thalamus.

9. The area of the brain that is critical for language is the
    a. left cerebellum.
    b. right perisylvian region.
    c. left perisylvian region.
    d. right cerebrum.

10. A brain region associated with speech production and expressive language is
    a. Wernicke's Area.
    b. Heschl's Gyrus.
    c. Broca's Area.
    d. all of the above.

Short Answer:

- Why is knowledge of biological systems important to a speech-language pathologist or audiologist. Give an example.
- In order for someone to understand spoken language, what biological systems must be used?
- What biological factors make each person's voice unique?
- What regions of the brain are important for speech, language, and hearing?