Voice Disorders

Scope of Theory and Practice

Second Edition

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In loving memory of my father-in-law, Edward F. Ferrand, PhD
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Preface

*Voice Disorders: Scope of Theory and Practice*, Second Edition, presents a comprehensive account of the field of voice in the early years of the new millennium. The book is meant for graduate students in speech-language pathology as well as practicing professionals who would appreciate an up-to-date yet easy-to-read reference. The book is based on 25 years of teaching a graduate-level voice disorders course, integrated into a framework of classic and current research.

**Goal of the book**

The goal of this book is to present a detailed picture of current theory and practice in the field of voice in a way that is both comprehensive and readily accessible to the reader. Understanding of the material is facilitated by the organization of the information.

**Organization of the book**

The idea for this book developed gradually over some years as I experimented with different organizational formats for the course. It seemed logical to begin with a detailed discussion of respiratory and laryngeal anatomy and physiology to build a solid foundation of knowledge of normal structure and function. And, following the initial discussion with information regarding changes in structure and function over the lifespan, was also an obvious step. At what point to cover clinical management domains (i.e., diagnosis, evaluation, therapeutic approaches, treatment issues) was more difficult. I tried numerous approaches, for example, presenting information on voice disorders (etiologies, symptoms, etc.) followed by sections on diagnosis and evaluation, and finishing up the course with treatment. However, by the end of the semester there was typically very little time (usually just one session) to cover treatment. Next I tried infusing treatment techniques into the disorders sections and leaving diagnosis and evaluation until the end of the course. But it made more clinical sense to present material on diagnosis prior to discussing specific intervention approaches. Finally, I settled on the current organization of the course, which also forms the organization of this book. The first section of the book (Chapters 1 and 2) presents the foundational anatomical information that forms the basis for rational clinical decision making. The next section (Chapters 3 and 4) provides a thorough grounding in clinical methodology in the assessment and treatment of voice disorders. Students are introduced to important
diagnostic and therapeutic principles and methods that underlie many different types of voice disorders. The final section of the book (Chapters 5–10) is devoted to an in-depth discussion of specific voice disorders, with focused clinical management techniques elaborated on as appropriate. For example, medical/surgical treatment approaches that are specific to Parkinson’s disease are discussed in the chapter on movement disorders, and therapeutic strategies specific to paradoxical vocal fold motion are presented in the chapter on disorders related to airway difficulties and respiration.

Each chapter is followed by assessment quizzes and review questions that help the reader to summarize and internalize the information. Practice Praxis questions prepare students for the types of questions commonly seen on the Praxis exam.

**DETAILED ORGANIZATION OF THE BOOK**

Chapter 1 presents the anatomy and physiology of the respiratory system, including descriptions of lung volumes and capacities important for voice production. A detailed discussion of the laryngeal mechanism follows, including information on the vital role of extracellular matrix, the importance of the mucosal wave, and the role of phonation threshold pressure in the vibratory cycle. The neurology of laryngeal motor control is discussed, focusing on cortical, subcortical, and peripheral structures that regulate voice production. Attention is paid to the three stages of wound healing that can result in a vocal fold scar. The chapter concludes with a discussion of modal, pulse, and falsetto registers used in speech production.

Chapter 2 is devoted to a discussion of lifespan changes in the respiratory and phonatory systems from embryological development through infancy, childhood, puberty, adulthood, and old age. Structural and functional changes in the laryngeal system are presented along with the perceptual and acoustic effects of such changes, focusing attention on the aging voice. Knowledge of these changes and their effects on voice production is of crucial importance, given the dramatic and continuing increase in the elderly population in the United States. Understanding what constitutes normal aging forms the basis for differentiating between expected and pathological vocal change.

Chapter 3 presents a comprehensive discussion of diagnostic and evaluation procedures. The importance of obtaining a thorough case history is emphasized, and examples of case history protocols for adults and children are provided. The current emphasis on patient-reported outcomes and quality of life is stressed, and several examples of quality-of-life questionnaires are presented. The chapter discusses components of the voice evaluation including auditory-perceptual assessment, endoscopic measures, acoustic analysis, aerodynamic measures, and laryngeal electromyography. The chapter concludes with a detailed case history illustrating many of the concepts, with related questions pertaining to the diagnostic process.

Chapter 4 presents a comprehensive discussion of clinical management and clinical considerations. Discussion focuses first on primary, secondary, and tertiary prevention. Attention then turns to specific indirect and direct approaches, including vocal hygiene programs, hydration, biofeedback, respiratory support, yawn-sigh, effort-closure techniques, accent method, resonant voice therapy, vocal function exercises, Lee Silverman Voice Treatment, semi-occluded vocal tract, and flow phonation. Discussion then turns to phonosurgical procedures such as thyroplasty, airway widening procedures, and vocal fold augmentation injection. Where available, outcomes studies and efficacy
research are presented for each behavioral and phonosurgical approach. The important issues of patient compliance with behavioral voice therapy techniques, and the need for patient counseling, are highlighted. Information is presented regarding the provision of therapeutic services for children, and the chapter concludes with a discussion of multicultural issues in voice therapy.

Chapter 5 presents information on structural pathologies of the larynx, including nodules, polyps, cysts, scar, sulcus, granuloma and contact ulcer, leukoplakia, recurrent respiratory papillomatosis, subglottic and glottic stenosis, laryngomalacia, vocal fold hemorrhage, varix, and ectasia.

Chapter 6 focuses on inflammatory conditions of the larynx, such as acute and chronic laryngitis, gastroesophageal reflux disease and laryngopharyngeal laryngitis, and autoimmune inflammatory diseases such as systemic lupus erythematosus, relapsing polychondritis, and rheumatoid arthritis.

Chapter 7 addresses neurologic disorders affecting voice, including those related to pathologies of the peripheral nervous system, such as vocal fold paresis/paralysis and myasthenia gravis, and the laryngeal movement disorders of spasmodic dysphonia and essential tremor. Discussion then turns to central nervous system disorders that affect voice including amyotrophic lateral sclerosis, Parkinson’s disease, pseudobulbar palsy, multiple sclerosis, cerebellar disorders, and Huntington’s disease.

Chapter 8 focuses on voice disorders related to self, identity, and lifestyle. The central role of stress in many of these disorders is emphasized. Vocal fatigue is considered as a clinical entity that is common to many disorders. Attention is paid to muscle tension dysphonia, functional neurological symptom disorder, mutational dysphonia, and transgender voice. Treatment of transsexual voice following sex reassignment surgery is described.

Chapter 9 describes disorders related to airway problems and respiration. The major symptoms of airway disorders, dyspnea and stridor, are explained. The importance of pulmonary function testing is emphasized with reference to distinguishing between asthma and paradoxical vocal fold motion. A laryngeal condition related to inhaled steroid use for asthma is identified, called steroid inhaler laryngitis. Episodic laryngeal breathing disorders are characterized in terms of laryngeal hypersensitivity/hyperresponsiveness. The disorders of paradoxical vocal fold motion and chronic cough are described, and the links between these two conditions are pointed out. Evaluation and treatment protocols specific to each disorder are presented.

Chapter 10 focuses on laryngeal cancer. The TMN classification system developed by the American Joint Committee for Cancer Staging is presented. Risk factors for laryngeal cancer are identified, and the importance of a multidisciplinary approach is emphasized. Discussion then shifts to medical treatments for removal of the cancer, including radiation therapy and chemotherapy, and the resulting voice and swallowing function. Surgical options for removal of the cancer are presented, including various partial laryngectomy procedures. Voice and swallowing function after each type of procedure is described. A description of total laryngectomy is provided. Physical, psychoemotional, and communicative problems related to the surgery are identified. Attention then focuses on methods of voice restoration including artificial larynx, esophageal speech, and tracheoesophageal speech. Advantages and disadvantages of each method are explored. The chapter concludes with general considerations for voice restoration including quality-of-life issues.
NEW TO THE SECOND EDITION

The second edition retains the essential features of the first edition, but there are nine important enhancements.

- The organization of chapters (foundational knowledge, diagnosis and clinical management, specific disorders) remains the same, but some of the disorders have been reclassified based on the Classification Manual for Voice Disorders by Verdolini, Rosen, and Branski (2006).
- Clinical information (clinical notes, clinical application, clinical management) has been placed in textboxes outside the theoretical narrative to highlight the practical aspects of the material and the links between theory and practice.
- Additional information and “fun facts” have been placed in textboxes. The additional information presents more detail about specific topics.
- Treatment approaches discussed in Chapter 4 have been presented as bulleted steps to facilitate utilization of these techniques.
- The information on clinical considerations such as patient compliance has been integrated into the chapter on Clinical Management.
- Detailed information on counseling for speech-language pathologists has been included.
- Assessment quizzes and practice Praxis questions are now available in the enhanced eText for this text.
- Videos of selected disorders are included in the enhanced eText.
- Research has been updated.

Writing this book has been a wonderful learning experience, and it is my hope that readers will find the topic of voice disorders to be as fascinating and challenging as I do.

Carole Ferrand

The eText Advantage

The eText for this title is an affordable, interactive version of the print text that includes videos and interactive features that provide opportunities for students to get feedback on their answers to the questions posed.

To learn more about the enhanced Pearson eText, go to: www.pearsonhighered.com/etextbooks.

Supplementary Materials: Resources for Professors and Students

INSTRUCTOR’S RESOURCE MANUAL AND TEST BANK

Instructors will find a wealth of resources to support their course within the text itself. Each chapter in the Instructor’s Resource Manual contains chapter-by-chapter teaching aids. The Test Bank for each chapter includes various types of test questions, including multiple choice, true/false, and essay questions. The supplement is available online or
you can contact your Pearson representative. To download and print the Instructor's Resource Manual and Test Bank, go to www.pearsonhighered.com and then click on “Educators.”

POWERPOINTS

In addition to the Instructor's Resource Manual and Test Bank, we have provided the instructor with PowerPoints. This supplement is also available online or you can contact your Pearson sales representative. To download and print the supplement files, go to www.pearsonhighered.com and then click on “Educators.”

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Carole Ferrand