To Mary Catherine Martin—deeply loved and dearly missed.
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The founders of audiology could not have envisioned the many ways in which this profession would evolve to meet the needs of children and adults with hearing and balance disorders. Breakthroughs continue to come in all areas of audiological diagnosis and treatment, resulting in a profession that is more exciting and rewarding today than ever before.

Treatment is the goal of audiology, and treatment is impossible without diagnosis. Some people have developed the erroneous opinion that audiology is all about doing hearing tests. Surely, testing the hearing function is essential, however, it might appear that many tests could be performed by technical personnel who lack the education required to be total hearing healthcare managers. Historically, the profession has rejected this approach and has developed a model wherein one highly trained, self-supervised audiologist carries the patient and family from taking a personal history through diagnosis and into management. Toward this end, the development of a humanistic, relationship-centered, approach to hearing care has evolved, one in which the audiologist guides patients and families to the highest success levels possible.

New to This Edition

With each new edition of this book, we strive not only to update the material to keep content current with recent research, but also to make it more user-friendly for students. Although a great deal of advanced material has been added, the primary target of this book continues to be the new student in audiology. While providing an abundance of how-to information, every effort is made to reveal to the novice that audiology can be a rewarding and fascinating career. In this edition, a number of features have been added or enhanced, including:

- A new chapter focusing on the diagnosis and management of balance, tinnitus, and sound tolerance problems
- A breakdown of Check Your Understanding questions available in the eText so that these follow each major section within each chapter rather than as a full presentation of all questions for the chapter at the end
- A brief, instructional feedback statement has been added for each Check Your Understanding question in the eText when the correct response is selected
- For better ease of review of key concepts, each learning outcome stated at the beginning of the chapters is numbered to correspond with the major heading within the chapter where that learning outcome is discussed
• Additional “Clinical Commentaries” appear throughout the text
• Four new instructional videos in the eText edition covering probe-microphone measures, immittance measures, hearing aids, and vestibulography
• A restructuring of material in many chapters for easier flow
• Updated references to reflect the most recent research

The eText Advantage

As with the twelfth edition, Introduction to Audiology is available as an eText. Publication in an eText format allows for several advantages over a traditional print format. In addition to greater affordability, this format provides a search function that allows the reader to locate coverage of concepts efficiently.

A variety of Activities designed to facilitate learning are placed at the ends of chapters and accessible through the eText. At the conclusion of each major heading within chapters, readers can access interactive eText multiple-choice Check Your Understanding questions to assess comprehension of key concepts. Immediate instructive feedback is provided after each question when correct responses are identified. We believe use of the Check Your Understanding questions and the chapter activities can increase confidence in preparation for examinations and other challenges. In their diagnostic form, these questions and activities can help identify points of knowledge and areas of weakness or knowledge gaps to direct students in their review of materials.

To further enhance assimilation of new information, links to twenty-two video clips are interspersed throughout the text and are available through the eText. These video clips demonstrate different aspects of audiological practice. They include illustration of otoscopic technique and basic hearing test procedures, as well as more advanced electroacoustic and electrophysiologic tests, earmold impression technique, hearing aid assessment measures, and more.

Bold key terms are clickable and take the reader directly to the glossary definition. Navigation to particular sections of the book is also possible by clicking on desired sections within the expanded table of contents. Sections of text may be highlighted and reader notes can be typed onto the page for enhanced review at a later date.

It is our hope that the eText format will enrich the student’s learning experience and further enhance the learning process. To learn more about the enhanced Pearson eText, go to www.pearsonhighered.com/etextbooks.

How to Use This Book

Throughout this book’s history of over four decades, its editions have been used by individuals in classes ranging from introductory to advanced levels. Students who plan to enter the professions of audiology, speech-language pathology, and education of children with hearing impairment have used it. All of these individuals are charged with knowing all they can learn about hearing disorders and their ramifications. To know less is to do a disservice to those children and adults who rely on professionals for assistance.

The chapter arrangement in this book differs somewhat from most audiology texts in several ways. The usual approach is to present the anatomy and physiology of the ear
first, and then to introduce auditory tests and remediation techniques. In this text, after an introduction to the profession of audiology and a review of the science of hearing in Chapters 1 and 2, a superficial look at how the ear works is provided as a conceptual beginning to aid in the understanding of the details of auditory tests as they relate to the basic mechanisms of hearing. Thus, with a grasp of the test principles, the reader is better prepared to benefit from the many examples of theoretical test results that illustrate different disorders in the auditory system.

The organization of this book has proved useful because it facilitates early comprehension of what is often perceived as difficult material. Readers who wish a more traditional approach may simply rearrange the sequence in which they read the chapters. Chapters 8 through 11, on the anatomy, physiology, disorders, and treatments of different parts of the auditory apparatus, can simply be read before Chapters 3 through 7 on auditory tests. At the completion of the book, the same information will have been covered.

The teacher of an introductory audiology course may feel that the depth of coverage of some subjects in this book is greater than desired. If this is the case, the primary and secondary headings allow for easy identification of sections that may be deleted. If greater detail is desired, the suggested reading lists at the end of each chapter can provide more depth. The book may be read in modules so that only specified materials are covered.

Each chapter in this book begins with an introduction to the subject matter and a statement of instructional objectives. Liberal use is made of headings, subheadings, illustrations, and figures. A summary at the end of each chapter repeats the important portions. Terms that may be new or unusual appear in bold print and are defined in the book’s comprehensive glossary. Review tables summarize the high points within many chapters. For those who wish to test their ability to synthesize what they learn and solve some practical clinical problems, the Evolving Case Studies in selected chapters provide this opportunity. The indexes at the back of this book are intended to help readers to find desired materials rapidly.

Acknowledgments

The authors would like to express their appreciation to Kayla Whitaker for her immeasurable assistance in preparation of aspects of this edition of the text and its instructors’ manual. Similarly, we are grateful to Brittany Gilb and Sarah Delaney for their assistance with the accompanying slide bank. The authors would also like to express their appreciation to the reviewers of this edition: Steve Bornstein, University of New Hampshire; Ashley L. Dockens, Au.D., Ph.D., Lamar University; Andrea Warner-Czyz, The University of Texas at Dallas.
About the Authors

Following a four-year enlistment in the U.S. Air Force, Frederick Martin returned to college to complete his bachelor’s and master’s degrees and embarked on a career as a clinical audiologist. After eight years of practice, he returned to graduate school and earned his Ph.D., then he joined the faculty at The University of Texas at Austin, where he taught and did research for 38 years. He is now the Lillie Hage Jamail Centennial Professor Emeritus in Communication Sciences and Disorders.

In addition to the thirteen editions of *Introduction to Audiology*, seven of which were co-authored by Dr. John Greer Clark, Martin has authored seven books, co-authored another seven, edited thirteen, and co-edited three. He has written twenty-four chapters for edited texts, 122 journal articles, 104 convention or conference papers, and five CD-ROMs. He served as a reviewer for the most prominent audiology journals and for years co-edited *Audiology: A Journal for Continuing Education*.

During his tenure at The University of Texas, Martin won the Teaching Excellence Award of the College of Communication, the Graduate Teaching Award, and the Advisor’s Award from the Texas Alumni Association. The National Student Speech-Language-Hearing Association named him Professor of the Year in Communication Sciences and Disorders at The University of Texas for 2002–2003. He was the 1997 recipient of the Career Award in Hearing from the American Academy of Audiology, and in 2006, he was the first to receive the Lifetime Achievement Award from the Texas Academy of Audiology. In 2009, Martin was honored by the Arkansas Hearing Society with the Thomas A. LeBlanc Award. The text, *Introduction to Audiology*, was a finalist for the prestigious Hamilton Book Award of The University of Texas in 2006. He is a Fellow of the American Academy of Audiology and the American Speech-Language-Hearing Association and is an Honorary Lifetime Member of the American Speech-Language-Hearing Association and the Texas Speech-Language Hearing Association, and was the first and remains the only recipient of Honorary Lifetime Membership in the Austin Audiology Society. The College of Communication of The University of Texas at Austin established the Frederick N. Martin Endowed Scholarship in 2011 awarded annually to an outstanding graduate student at The University who plans to pursue a career in audiology.
Dr. Clark received his bachelor of science from Purdue University and his master’s degree from The University of Texas at Austin. Following postgraduate studies at Louisiana State University, he completed his doctoral degree at the University of Cincinnati.

A recipient of both the Prominent Alumni and Distinguished Alumnus Awards from the University of Cincinnati and the Honors of the Ohio Speech and Hearing Association, Dr. Clark was elected a Fellow of the American Speech-Language-Hearing Association in 1996. He is a Past President of the Academy of Rehabilitative Audiology, Past Chair of the American Board of Audiology, and a Fellow of the American Academy of Audiology. He served four years on the Board of Directors of the American Academy of Audiology and the Ohio Academy of Audiology, and, with his wife, was co-founder of the Midwest Audiology Conference, which subsequently evolved into separate conferences for the states of Indiana, Ohio, and Kentucky. In 2017, he received the Distinguished Achievement Award from the American Academy of Audiology.

A presenter at local, state, national, and international association meetings and conventions, Dr. Clark has served as a faculty fellow for the Ida Institute in Naerum, Denmark, and as associate editor, editorial consultant, and reviewer for a number of professional journals. His more than 100 publications include three edited textbooks, a variety of co-authored texts, two single-authored books, sixteen book chapters, and a range of journal articles on various aspects of communication disorders. In 2013 his audiology counseling text, co-authored with Dr. Kristina English, was selected by the American Academy of Audiology as one of the top twenty-five audiology texts written in the past twenty-five years. His current research interests are within the areas of adult audiologic rehabilitation, audiologic counseling, and animal audiology.

Dr. Clark’s professional career started with the Louisiana Department of Health and Human Resources, where he served as audiologist for the Handicapped Children's Program and coordinator for the Geriatric Pilot Project in Communicative Disorders. He was an Assistant Clinical Professor within the Department of Otolaryngology and Maxillofacial Surgery at the University of Cincinnati Medical Center before embarking on a successful private practice, which he left after fifteen years to serve as the Director of Clinical Services of Helix Hearing Care of America. He later returned to private practice with his wife for a number of years before returning to the University of Cincinnati. Currently, he is the Director of Audiology Education in Communication Sciences and Disorders at the University of Cincinnati.
Introduction to Audiology