

Guest Editorial

Hearing and Aging



Are hearing loss and auditory processing deficits inevitable consequences of the aging process? To what extent do anatomical and physiologic senescent changes in auditory system structures produce deficits in auditory processing among elderly people? What alterations in cognitive abilities accompany aging and how do these changes influence processing and understanding of speech? What techniques are effective in ameliorating the negative effects of presbycusis? These fundamental questions about hearing and aging have long been debated but have not yet been resolved. This special issue of the *Journal of the American Academy of Audiology* devoted to hearing and aging represents a compendium of contemporary research that examines these and other essential questions. Population statistics show that, on average, hearing sensitivity declines steadily with increasing age. Moreover, projections of the population in the U.S. indicate that the number of elderly people will continue to expand into the 21st century. The outcome of these trends is that hearing-impaired elderly people will seek remediation of their auditory problems in ever-increasing numbers in the years to come. As a result, audiologists need to be concerned and knowledgeable about auditory performance in aging, predisposing factors to deterioration in auditory performance, and effective methods to circumvent these specific problems. The central thesis of most articles comprising this special issue is that the effects of age-related sensitivity loss interact with other age-related factors to produce auditory performance deficits that differ from those of younger people. Knowledge of the nature of these factors and their effects should dictate the selection of relevant audiologic evaluation procedures, ampli-

fication and signal processing devices, and remediation strategies specifically for elderly people. This special issue is intended to provide our audience with a new level of understanding about the multifaceted nature of hearing processes among elderly people.

A thorough study of hearing and aging requires an interdisciplinary effort. This special issue reflects the important contributions of many different disciplines to this endeavor with invited papers by noted experts in a variety of related fields: cognitive psychology, psychoacoustics, audiology, neuroscience, and gerontology. The articles that comprise this special issue are broadly organized into three main sections. The first section, containing an article by James Willott, presents a comprehensive review of anatomical and physiologic research on the aging auditory system with an emphasis on two inter-related models of changes in central auditory activity that accompany aging. The second section includes five articles concerned with behavioral aspects of aging. Larry Brant and his colleagues report new findings of significant risk factors for age-related hearing loss from the Baltimore Longitudinal Study of Aging, National Institute on Aging. Larry Humes analyzes three hypotheses postulated to underlie the speech understanding problems of elderly listeners based on findings from his research program. Performance patterns by elderly listeners on selected binaural tasks are reviewed by John Grose, with a discussion of implications for hearing aid design and hearing aid selection for elderly listeners. Arthur Wingfield explains techniques that are used to evaluate cognitive abilities among elderly people and demonstrates that alterations in certain cognitive factors may act to improve or diminish the elderly person's

reception of auditory signals. Recent research of age effects on auditory temporal processing measures and their relation to performance on speech recognition tasks is reviewed by Peter Fitzgibbons and myself. The final section of this issue addresses audiologic rehabilitation techniques for elderly people. Rose Chmiel and James Jerger evaluate the benefit of hearing aid intervention for a sample of elderly people with hearing loss who show either normal or abnormal results on a dichotic measure. Harriet Kaplan presents an overview of assistive listening devices that can be recommended for "young-old" and "old-old" people in a variety of living situations to replace or supplement personal hearing aid use. In the last article, Donald Schum evaluates the effectiveness of natural efforts to speak clearly for

elderly hearing-impaired people and discusses the implications of this strategy in relation to hearing aid use and aural rehabilitation training programs.

I hope that the articles in this special issue, both individually and collectively, stimulate new ideas for research that can help us understand better the complex nature of the auditory problems of aging. At the same time, I hope that the wealth of information and ideas conveyed in each article is useful to audiologists engaged in clinical practice, who must apply effective techniques to solve the unique problems posed by the ever-increasing population of elderly hearing-impaired clients every day.

Sandra Gordon-Salant
Guest Editor