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Introducing Mysteries of the Hearing Brain!

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In this issue, Dr. Samira Anderson joins Canadian Audiologist with a new column, “Mysteries of the Hearing Brain.” She will continue some of the themes that were covered in Dr. Kelly Tremblay’s previous column, “Grand Central Station.” Samira and Kelly share common experiences, in that they both worked as clinicians for several years before deciding to pursue a PhD with Dr. Nina Kraus at Northwestern University. Samira’s research is motivated by her clinical experiences. She has worked with all ages, but her current studies focus on uncovering the reasons for the varied outcomes experienced by older adults who use hearing aids or cochlear implants. She combines behavioral testing with electrophysiological measures to better understand the nature of speech understanding deficits. In this first column she provides a bit of personal and profession background, and the basis for this column.

What Motivated Me to Pursue Research?

I worked as a clinical audiologist for 26 years in Minnesota in different environments, including private practice and a multi-specialty practice. I like to tell my students that I did not leave clinical work because I had become bored. I had a lot of variety in my practice and I really enjoyed it,

especially the relationships that I formed with patients that I worked with over the course of many years. In fact, I was quite content to continue working as a clinical audiologist. But, I experienced a turning point in June of 2006. I was celebrating my 25th wedding anniversary with my husband, and we were talking about people whom we admired in life. I mentioned two people, Dr. Kathleen Campbell, an audiologist who is a leader in the field of ototoxicity and otoprotective agents, and Dr. Nina Kraus, an auditory neuroscientist who uses electrophysiology to study clinical populations with innovative techniques. When I mentioned these leaders in the audiology field, my husband said, "If these are the people you admire, why don't you get a PhD and pursue research?" I protested that I was too old (48 at the time), but my husband insisted that it wasn't too late. I decided that it wouldn't hurt to investigate options, and after talking to several people in the field I decided to apply to PhD programs and joined Nina Kraus' Auditory Neuroscience Lab at Northwestern University in the fall of 2007.

There were two main reasons that motivated the desire to pursue research and teaching. First, I was frustrated with my inability to predict how well any particular individual would respond to hearing aid amplification, and I wanted to investigate better ways of assessing my patients' hearing difficulties and of predicting management outcomes. In particular, I wanted to incorporate electrophysiological measures into assessment protocols to provide an objective measure of the suprathreshold processing deficits that commonly occur with aging. Second, I was a facilitator for the University of Florida's AuD Distance Learning Program for several years. As a facilitator, I had the opportunity to interact with students during the on-site weekend visits that occurred every week and during on-line discussion sections that occurred weekly. I greatly enjoyed this interaction with the students, and I was inspired by the experience to consider teaching as a primary profession.

I am now an Associate Professor in the Department of Hearing and Speech Sciences at the University of Maryland, and I love what I do. When I was as a clinician, each new patient presented a set of symptoms that represented a potential mystery to be solved. Now as a researcher I try to solve essentially the same mystery – what causes some individuals to struggle so much to hear, even while using hearing aids or cochlear implants. My current research comprises three approaches to improving speech understanding in older adults: (1) Investigate the neural basis of speech perception deficits in older adults, (2) Investigate auditory training approaches that may induce neuroplasticity to reverse age-related deficits in auditory processing, and (3) Investigate methods of optimizing devices (hearing aids or cochlear implants) to improve the benefit gained from auditory or electrical stimulation. I combine electrophysiology, magnetoencephalography, and behavioral testing to unravel these mysteries.

To be effective, research in hearing disorders must be informed by clinical experience. Therefore, I hope to continue the structure that Dr. Kelly Tremblay had adopted for her previous column, "Grand Central Station," and I invite readers to share interesting clinical experiences or to submit questions regarding a research topic or article. To the extent possible, I will comment on these experiences or questions with evidence from published research.