

SUSAN J. NORTON, PhD CCC-A
Seattle Children's Hospital
4800 Sand Point Way NE
MS OA.8.300.8
Seattle, WA 98105

EDUCATION AND TRAINING:

Undergraduate Education

B.A. Speech Pathology 1967-1971
University of Denver
Denver, CO

Graduate Education

M.S. Audiology 1971-1973
Purdue University
West Lafayette, IN

Ph.D. Hearing Sciences 1979-1982
University of Washington
Seattle, WA

Postgraduate Education

NIH Postdoctoral Fellow 1982-1984
Boys Town National Research Hospital
Omaha, NE

FACULTY POSITIONS:

Assistant Professor 1984-1988
Hearing and Speech Department
University of Kansas Medical Center
Kansas City, KS

Associate Professor (with Tenure) 1988-1991
Hearing and Speech Department
University of Kansas Medical Center
Kansas City, KS

Associate Professor 1991 - 2001
Department of Otolaryngology - Head & Neck Surgery

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Univeristy of Washington School of Medicine
Seattle, WA

Professor

2001-present

Department of Otolaryngology - Head & Neck Surgery
Univeristy of Washington School of Medicine
Seattle, WA

Adjunct Associate Professor

1991 - 2001

Department of Speech and Hearing Sciences
Univeristy of Washington
Seattle, WA

Adjunct Professor

2001-present

Department of Speech and Hearing Sciences
Univeristy of Washington
Seattle, WA

POSITIONS HELD:

Director

1995 - 2016

Family Conversations Early Intervention Program
for Deaf and Hard of Hearing Infants and Their Families
Seattle, WA.

Chief

1991 - present

Research & Clinical Audiology
Seattle Children's Hospital
Seattle, WA.

Co-Director

1994-present

Pediatric Cochlear Implant Program
Seattle Children's Hospital
Seattle, WA.

Affiliate

1991 present

Virginia Merrill Bloedel Hearing Research Center
University of Washington
Seattle, WA

Affiliate

1991 - present

Child Health and Human Development Center

10/2/2018

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| University of Washington Seattle, WA | |
| Faculty Center on Aging University of Kansas Medical Center Kansas City, KS | 1988 - 1991 |
| Key Investigator Mental Retardation Research Center University of Kansas Medical Center Kansas City, KS. | 1985 - 1991 |
| Research Assistant, Hearing Research Laboratory Department of Speech and Hearing Sciences, University of Washington Seattle WA. | 1980 - 1982. |
| Teaching Assistant Department of Speech and Hearing Sciences University of Washington Seattle, WA. | 1979 - 1980 |
| Research Technician Auditory Evoked Response Laboratory Otolaryngology Seattle, V.A. Medical Center, Seattle, WA. | 1978 - 1979. |
| Research Audiologist Rehabilitative Engineering Harvard-MIT Health Sciences Consortium Research Laboratory of Electronics Massachusetts Institute of Technology Boston, MA | 1975 - 1978. |
| Audiologist Hearing and Speech Division and Neurology Learning Disabilities Clinic Children's Hospital Medical Center Boston, MA. | 1973 - 1977 |
| Research Assistant | 1972 - 1973. |

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Auditory Evoked Response Laboratory
Purdue University
West Lafayette, IN.

Speech and Language Clinician 1971
Colorado State Home and Training School
Wheatridge, CO

HONORS AND AWARDS:

Scholar's Program 1967-1971
University of Denver
Denver, CO

Rehabilitation Services Administration Fellowship 1971-1973
Purdue University
West Lafayette, IN

NINCDS Individual Post-Doctoral Research Fellowship 1982-1984
Boys Town National Research Hospital
Omaha, NE

Developing Investigator Research Award 1987
School of Allied Health
University of Kansas Medical Center
Kansas City, KS

American Auditory Society Editor's Award 2000
For Outstanding Research in Audiology & Hearing Science

Outstanding Alumnus 2008
University of Washington
Department of Speech & Hearing Sciences

CERTIFICATION:

Certificate of Clinical Competence in Audiology (CCC-A) 1974 -present
American Speech-Language-Hearing Association

State of Washington Liscensed Audiologist 2000-present

10/2/2018

PROFESSIONAL ORGANIZATIONS:

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| Acoustical Society of America | 1979 - present |
| American Speech-Language-Hearing Association | 1972 - present |
| Association for Research in Otolaryngology | 1982 -present |
| American Academy of Audiology | 1990– present |
| American Auditory Society | 1996-present |
| Alexander Graham Bell Association for the Deaf | 2003- present |
| Washington Speech Language & Hearing Association Board Member | 2004-2006 |

TEACHING RESPONSIBILITIES:

University of Washington

Management of Hearing Impaired Children – Graduate Level
Cochlear Implants – Graduate Level

University of Kansas Medical Center - 100%

Taught Yearly:

Advanced Diagnostic Audiology - Graduate Level
Disorders of Hearing - Graduate Level
Psychoacoustics - Graduate Level

Graduate Level Seminars:

Cochlear Implants
Psychoacoustics in Hearing Impaired Listeners
Cochlear Mechanics
Neurobiology of Hearing - Co-taught with Tom Img, Dept. of Physiology
Middle Ear Immittance Measurements
Structure & Function of Auditory Efferents
Oto-acoustic Emissions: Theory and Applications

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Trainees (Past Five Years)

| | |
|--|-------------|
| Kay Chang, MD - Resident Postdoctoral Fellow | 1992 - 1996 |
| Kevin Franck, Ph.D. - Doctoral Student | 1995 - 1999 |
| Dawn Konrad-Martin, Ph.D. - Doctoral Student | 1996 - 1999 |
| Kathleen C.Y. Sie, MD - CIDA Co-Sponsor | 1996 - 2000 |
| Benjamin Cilento, MD, Resident Postdoctoral Fellow | 2001 - 2002 |
| Ryan Stern, MD, Resident Postdoctoral Fellow | 2003 - 2004 |
| Heather Parrish, Doctoral Student | 2004 - 2006 |
| Stephanie Missone, MD Resident Postdoctoral Fellow | 2005 - 2010 |

NATIONAL/INTERNATIONAL PROFESSIONAL ACTIVITIES:

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| Research and Scientific Affairs Committee American Speech-Language-Hearing Association | 1999 - 2003 |
| European Economic Union Working Group on Early Identification of Hearing Loss | 1999 - 2000 |
| State of Washington, Department of Health Washington State Steering Committee Early Identification and Intervention for Hearing Loss | 1998 - present |
| NIDCD Task Force on Early Identification, Diagnosis and Intervention of Hearing Loss, | 1997 - 2000 |
| Local Organizing Committee Joint International Congress of Acoustics Acoustical Society of America Meeting Seattle, WA | 1997 - 1998 |
| Consultant, European Economic Union, Working Group on Otoacoustic Emissions | 1993 - 1995 |
| Program Committee Association for Research in Otolaryngology | 1994 - 1999 |
| Advisory Board Center for Hearing Loss in Children Boys Town National Research Hospital Omaha, NE | 1990-1996 |
| ANSI Working Group on Standards for Otoacoustic Emissions | 1995 - 2000 |
| NIDCD HAR Study Section | 1991-1995 |

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| Task Force on Audiology and Speech-Language Pathology Current Procedural Terminology (CPT) Classifications American Speech-Language-Hearing Association | 1993 - 1997 |
| International Symposium Organizer "Oto-acoustic Emissions: Theory, Techniques and Applications" | 1991 |
| Consultant Rhode Island Hearing Assessment Project; Early Identification of Hearing Impaired Children: Expanding and Refining Existing Best Practices, Providence, RI | 1990-1991 |
| Hearing Science, Chair, American Speech-Language-Hearing Association, Annual Convention St. Louis, MO | 1989 |
| Committee on Doctoral Education American Speech-Language-Hearing Association | 1989-1991 |
| Committee on Psychological and Physiological Acoustics Acoustical Society of America | 1987-1990 |
| Associate Editor, Journal of Speech Language & Hearing Research | 2004-2007 |
| Consultant FDA ENT Device Panel | 2006-2013 |
| Organizing Committee CI2009 | 2008-2009 |
| Member FDA ENT Device Panel | 2013-present |

UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE COMMITTEES:

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| Medical School Admissions Committee, | 1997 - 2005 |
| Search Committee, Chief of Audiology Department of Otolaryngology - Head & Neck Surgery | 1996 – 1997, 2001-2002 |

PRINCIPAL RESEARCH INTERESTS

Cochlear implants in young children
Early intervention outcomes.
Detection of hearing impairment in neonates and infants.
Correlation between physiological, acoustical and behavioral measures of peripheral auditory function.

RESEARCH FUNDING: (All as Principal Investigator)

- NINCDS Individual Post-Doctoral Fellowship Award, "Behavioral and Acoustic Measures of Non-linearities", 1982-1984
- NINCDS Academic Research Enhancement Award, "Characteristics of Oto-acoustic Emissions", October 1985 - October 1987.
- NINCDS Clinical Investigator Development Award, "Otoacoustic Emission in Normal and Non-Normal Ears", April 1987 - March 1992.
- DRF Deafness Research Foundation Grant, "The Relationships Between Evoked Oto-acoustic Emissions and Cochlear Potentials in Human Ears", January 1988 - December 1990.
- KUMC Center on Aging, "Age-Associated Changes in and the Relationship Between Cochlear Mechanics and Speech Understanding in Noise", September 1988 - June 1990.
- DRF "Age-Associated Changes in Cochlear Mechanics" January - December 1991.
- NIDCD R01 "Non-Invasive Measurements of Human Cochlear Mechanics", March 1990 - February 1995.
- NIDCD R10 "Identification of Neonatal Hearing Impairment", April 1993 - August 2000.
- ONR "Evoked Otoacoustic Emissions and Inner-Ear Damage from Noise Exposure", October 1993 - September 1998.
- ADAI "Prevalence of Hearing Loss in Children with Fetal Alcohol Syndrome", 1994 - 1995.
- OSPI "Early Intervention Home Instruction Program for Hearing Impaired Infants and Their Families", 1995 - 2008.
- AUDC/CDC "Monitoring of Risk Factors for Late-onset Hearing Loss" 2004 – 2008
- NIDCD SBIR "A Wide Band Reflectance - DPOAE (WR-DP) Screener" 2005-2007 Subcontract from Mimosa Acoustics
- PFEIFFER FOUNDATION "Role of congenital cytomegalovirus (CMV) infection in pediatric hearing loss" 2007-2010

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BIBLIOGRAPHY:

- Norton, S.J., Schultz, M.C., Reed, C.M., Braida, L.D., Durlach, N.I., Rabinowitz, W.M. Chomsky, C. Analytic results of tadoma: Background and preliminary results. Journal of Speech and Hearing Research, 1977, 20, 574-595.
- Palfrey, J., Hanson, M.A., Norton, S.J., Pleszcynska, C. & Levine, M. Selective hearing screening for very young children. Clinical Pediatrics, 1979, 19, 473-477.
- Dobie, R.A. & Norton, S.J. Binaural interaction in human auditory evoked responses. EEG & Clinical Neurophysiology, 1980, 49, 303-313.
- Norton, S.J. & Weber, D.L. Relations between cubic-difference-tone generation and suppression. Journal of Acoustical Society of America, 1984, 76, 44-49.
- Schultz, M.D., Norton, S.J., Conway-Fithion, S. & Reed, C.M. A survey of the tadoma method in the United States and Canada. Volta Review, 1984, 86, 282-291.
- Wier, C.C., Norton, S.J. & Kincaid, G.E. Spontaneous narrowband acoustic signals emitted by human ears: A replication. Journal of Acoustical Society of America, 1984, 76, 1248-1250.
- Wier, C.C., Schlauch, R.S. & Norton, S.J. Relations among critical bands, critical ratios, and intensity difference limens in man. Journal of Acoustical Society of America, 1984, 76, 1051-1057.
- Jesteadt, W. & Norton, S.J. The role of suppression in psychophysical measures of frequency selectivity. Journal of Acoustical Society of America, 1985, 78, 365-375.
- Neely, S.T., Norton, S.J., Gorga, M.P. & Jesteadt, W. Latency of oto-acoustic emissions and brainstem wave V responses using tone-burst stimuli. Journal of the Acoustical Society of America, 1987, 83, 652-656.
- Norton, S.J. & Mott, J.B. Effects of auditory fatigue on psychophysical estimates of cochlear non-linearities. Journal of the Acoustical Society of America, 1987, 82, 80-87.
- Norton, S.J. & Neely, S.T. Tone-burst evoked oto-acoustic emissions from normal-hearing subjects. Journal of Acoustical Society of America, 1987, 81, 1860-1872.
- Mott, J.B., Norton, S.J., Neely, S.T. & Warr, W.B. Changes in spontaneous oto-acoustic emissions produced by acoustic stimulation of the contralateral ear. Hearing Research, 1989, 38, 229-242.

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Norton, S.J., Mott, J.B. & Champlin, C.A. Behavior of spontaneous oto-acoustic emissions following intense ipsilateral acoustic stimulation. Hearing Research, 1989, 38, 243-258.

Norton, S.J., & Rubel, E.W. Active and passive ADP components in mammalian and avian ears. In Geisler, D. et al. (Eds.) The Mechanics & Biophysics of Hearing, Springer-Verlag, New York, 219-226, 1990.

Norton, S.J., Schmidt, A.L. & Stover, L.J. Tinnitus and oto-acoustic emissions: Is there a link? Ear and Hearing, 1990, 11, 159-166.

Norton, S.J. & Widen, J.E. Evoked oto-acoustic emissions in normal hearing infants and children: Emerging data and issues. Ear and Hearing, 1990, 11, 121-127.

Norton, S.J., Bargones, J.Y. & Rubel, E.W. Development of oto-acoustic emissions in gerbil: evidence for micromechanical changes underlying development of the place code. Hearing Research, 1991, 51, 73-92.

Geier, L. and Norton, S.J. The effects of limiting the number of Nucleus-22 cochlear implant electrodes programmed on speech perception. Ear and Hearing, 1992, 13: 340-348.

Norton, S.J. Cochlear Function and Oto-acoustic Emissions. Seminars in Hearing, 1992, 13, 1-14.

Chang, K.W., Vohr, B.R., Norton, S.J. & Lekas, M.D. External & Middle Ear Status Related to Evoked Otoacoustic Emissions in Neonates. Archives of Otolaryngology: Head & Neck Surgery, 1993, 119(3), 276-282.

Mills, D.M., Norton, S.J. & Rubel, E.W. The Functioning of the Cochlear Amplifier: Vulnerability and adaptation of distortion product otoacoustic emissions to endocochlear potential. Journal of the Acoustical Society of America, 1994, 94, 2108-2122.

Norton, S.J. Applications of Transient Evoked Otoacoustic Emissions to Pediatric Population. Ear and Hearing, 1993, 14, 64-73.

Stover, L.J. & Norton, S.J. The Effects of Aging on Otoacoustic Emissions. Journal of the Acoustical Society of America, 1993, 94:5, 2670-2681.

Kokesh, J., Norton, S.J. & Duckert, L.G. The Effect of Perilymphatic Fistulas in Evoked Otoacoustic Emissions in the Guinea Pig. American Journal of Otology, 1994, 15, 1-8.

Mills, D.M., Norton, S.J. & Rubel, E.W. Development of Active and Passive Mechanics in the Mammalian Cochlea. Journal of Auditory Neuroscience. 1994, 1, 77-99.

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- Seely, D.R., Wright, A.D., Gloyd, S.S, & Norton, S.J. Hearing Loss Prevalence and Risk Factors Among a Group of Sierra Leone Children. Archives of Otolaryngology - Head & Neck Surgery. 1995, 121-853-858.
- Nelson, P.B., Nittrouer, S. & Norton S.J. "Say-Stay" Identification and psychoacoustic performance of hearing-impaired listeners. Journal of the Acoustical Society of America. 1995, 9, 1830-1838.
- Chang, K.W. & Norton, S.J. The Effects of Continuous versus Interrupted Noise Exposure on Distortion Product Otoacoustic Emissions in Guinea Pig. Hearing Research. 1996, 96, 1-12.
- Sie, K & Norton, S.J. Changes in Otoacoustic Emissions and ABR after Cis-Platinum Exposure in Gerbils. Otolaryngology - Head & Neck Surgery.1997, 116, 585-592 .
- Chang, K.W. & Norton, S.J. Efferently mediated changes in the quadratic distortion product (f2-f1). Journal of the Acoustical Society of America, 1997, 102. 1719-1733.
- Harrison, W.A. & Norton, S.J. Characteristics of Transient Evoked Otoacoustic Emissions in Normal-Hearing and Hearing-Impaired Children. Ear & Hearing, 1999, 20, 75-86.
- Arts, H.A., Norton, S.J. and Rubel, E. W The effect of Perilymphatic Tetrodotoxin on Peripheral Auditory System Function. Seminars in Hearing, 1999, 20, 3-12.
- Sie, K.C.Y., deSerres, L.M. and Norton, S.J. Age-related Sensitivity to Cisplatin Ototoxicity in Gerbils. Hearing Research, 1999, 134, 39-47.
- Norton, S.J., Gorga, M.P., Widen, J.E., Folsom, R.C., Sininger, Y., Cone-Wesson, B., Vohr, B.R. and Fletcher, K. Identification of neonatal hearing impairment: A multi-center investigation. Ear & Hearing., 2000, 21, 348-356.
- Norton, S. J., Gorga, M.P., Widen, J.E., Folsom, R., Sininger, Y.S., Cone-Wesson, B., Mascher, K., & Fletcher, K . Identification of neonatal hearing impairment: Evaluation of transient evoked otoacoustic emission, distortion product otoacoustic emission and auditory brainstem response test performance. Ear & Hearing, 2000, 21, 508-528.
- Norton, S. J., Gorga, M.P., Widen, J.E., Vohr, B., Folsom, R., Sininger, Y. S., Cone-Wesson, B. & Fletcher, K. Transient otoacoustic emissions during the perinatal period. . Ear & Hearing, 2000, 21, 425-442.
- Norton, S.J., Folsom, R.C., Widen, J.W., Vohr, B.R., Sininger, Y. S., Cone-Wesson, B. Identification of neonatal hearing impairment: Summary and recommendations. Ear & Hearing, 2000, 21, 529-535.
- Harrison, W.A., Dunnell, J.J., Fletcher, K. A., Mascher, K. E., Vohr, B.R., Gorga, M.P., Widen, J.E., Cone-Wesson, B., Folsom, R.C., Sininger, Y., and Norton, S.J. Identification of

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- neonatal hearing impairment:: Experimental protocol and database management. Ear & Hearing, 2000, 21, 357-372.
- Folsom, R. C., Widen, J. E., Vohr, B. R., Cone-Wesson, B., Gorga, M. P., Sininger, Y. S., & Norton, S. J.. Identification of Neonatal Hearing Impairment: Recruitment and follow-up. Ear & Hearing, 2000, 21, 462-470..
- Gorga, M. P., Sininger, Y. S., Cone-Wesson, B., Folsom, R. C., Vohr, B. R., Widen, J. E., & Norton, S. J. Distortion product otoacoustic emissions during the perinatal period. Ear & Hearing, 2000, 21, 400-424..
- Keefe, D. H., Folsom, R. C., Gorga, M. P., Vohr, B. R., Bulen, J. C., & Norton, S. J. Ear-canal measurements of acoustic admittance and reflectance in neonates. Ear & Hearing, 2000, 21, 443-461.
- Sininger, Y. S., Cone-Wesson, B., Folsom, R. C., Gorga, M. P., Vohr, B. R., Widen, J. E., Ekelid, M., & Norton, S. J. Auditory brainstem responses during the perinatal period. Ear & Hearing, 2000, 21, 383-399.
- Vohr, B. R., Widen, J. E., Cone-Wesson, B., Sininger, Y. S., Gorga, M. P., Folsom, R. C., & Norton, S. J. Identification of Neonatal Hearing Impairment: Characteristics of Infants in the neonatal intensive care unit (NICU) and well baby nursery. Ear & Hearing, 2000, 21, 373-382.
- Widen, J. E., Folsom, R. C., Cone-Wesson, B., Carty, L., Dunnell, J. J., Koebshell, K., Loggins, J., Mancl, L., Ohlrich, B., Trouba, S., Gorga, M. P., Sininger, Y. S., Vohr, B. R., & Norton, S. J. Hearing status at 8-12 months corrected age: Visual reinforcement audiometry protocol. Ear & Hearing, 2000, 21, 471-487.
- Cone-Wesson, B., Vohr, B. R., Sininger, Y. S., Widen, J. E., Folsom, R. C., Gorga, M. P., & Norton, S. J. Infants with Hearing Impairment. Ear & Hearing, 2000, 21, 357-372. 488-507.
- Konrad-Martin, D., Norton, S.J., Mascher, K.M. & Tempel, B.L. Effects of PMCA2 mutation on DPOAE amplitudes and latencies in deafwaddler mice. Hearing Research, 2001, 151, 205-220.
- Franck, K. & Norton, S.J. Estimation of Psychophysical Levels using the Electrically Evoked compound Action Potential Measured with Neural Response Telemetry Capabilities of Cochlear Corporation's CI24M Device. Ear & Hearing, 2001, 22, 289-299.
- Cilento, B.W., Norton, S.J. and Gates, G.A. The Effects of Aging on Distortion Product Otoacoustic Emissions. Otolaryngology HNS, 2003, 129, 382-389.

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Stern, R.E., Yueh, B., Lewis, C. Norton, S. and Sie, K.C. Recent epidemiology of pediatric cochlear implantation in the United States: disparity among children of different ethnicity and socioeconomic status. Laryngoscope. 2005 Jan;115(1):125-31.

Seixas, N.S., Goldman, D., Sheppard, L., Neitzel, R., Norton, S. and Kujawa, S.G. Prospective noise induced changes to hearing among construction industry apprentices. Occup Environ Med. 2005 May; 62(5):309-17.

Eisenberg LS, Widen JE, Yoshinaga-Itano C, Norton S, Thal D, Niparko JK, Vohr B. Current state of knowledge: implications for developmental research--key issues. Ear Hear. 2007 Dec;28(6):773-7.

Dasika VK, Werner LA, Norton SJ, Nie K, Rubinstein JT. Measuring Sound Detection and Reaction Time in Infant and Toddler Cochlear Implant Recipients Using an Observer-Based Procedure: A First Report. Ear Hear. 2009 , 30(2), 250-261.

Missono, S. Sie, K., Weiss, N., Huang, M., Boeckh, M., Norton, S., & Yueh, B. Congenital cytomegalovirus infection in pediatric hearing loss. Arch. Otolaryngol. Head & Neck Surgery, 2011, 137 (1), 47-53.

Jung, KH, Won,JH, Drennan,WR, Jameyson, E., Miyaski, G., Norton, SJ & Rubinstein, JT. Psychoacoustic performance and music and speech perception in prelingually deafened children with cochlear implants. Audiol Neurootol. 2012, 17(3), 189-197.

Iwata, AJ, Dunnell, J., Norton, SJ & Sie, KC. Prenatal diagnosis of SLC26A4 mutation and delayed onset hearing loss. Otolaryngol Head Neck Surg. 2013 Apr;148(4):705-6.

Mitchell, RM, Saltzman, BS, **Norton, SJ**, Harrison, RG, Heike, CL, Luquetti, DV, Sie, KC. Hearing loss in children with craniofacial microsomia. Cleft Palate Craniofac J. 2016.

Meredith, M, Rubinstein, J, Sie, K, **Norton, SJ**. Cochlear implantation in children with post-lingual progressive steeply sloping high-frequency hearing loss. Journal of the American Academy of Audiology. 2017.

Book Chapters

Durlach, N.I., Reed, C.N., Braida, L.D., Schultz, M.C. & Norton, S.J. Research strategy for the study of tactile speech communication. In J.M. Pickett (Ed.), Papers from the Research Conference on Speech-Processing Aids for the Deaf. Gallaudet College, Washington, DC, 1977.

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Reed, C.M., Durlach, N.I., Braida, L.D., Norton, S.J. & Schultz, M.C. Experimental results of tadoma. In J.M. Pickett (Ed.), Papers from the Research Conference on Speech-Processing Aids for the Deaf. Gallaudet College, Washington, DC, 1977.

Norton, S.J., Mott, J.B. & Neely, S.T. Changes in spontaneous oto-acoustic emissions produced by acoustic stimulation. In Duifhuis, H., Horst, W. & Wit, H. (Eds.), Basic Issues in Hearing. Academic Press, London, 1988.

Norton, S.J. & Stover, L.J. (1994) Otoacoustic Emissions: An Emerging Clinical Tool. In Katz, J. (Ed) Handbook of Clinical Audiology, 4th edition, 1994.

Norton, S.J. and Perkins, J.O. *Early Detection and Diagnosis of Infant Hearing Impairment*. Cummings, Haugley, Thomas, Harker, Robbins, Schuller & Richardson. Otolaryngology – Head & Neck Surgery 4th Edition. Pp . 4387-4398. 2005

Papers/Presentations With Published Abstracts

Reed, C.M., Durlach, N.I., Braida, L.D., Norton, S.J. & Schultz, M.C. Experimental results of tadoma. Journal of Acoustical Society of America, 1977, 63, S8.

Wier, C.C., & Norton, S.J. Frequency selectivity: a comparison of methods. Journal of Acoustical Society of America, 1979, 66, S9.

Norton, S.J. & Wier, C.C. The effects of probe duration on simultaneous-masking tuning curves. Journal of Acoustical Society of America, 1981, 69, S21.

Wier, C.C. & Norton, S.J. Psychophysical tuning curves: Stimulus ensemble and level effects. Journal of Acoustical Society of America, 1981, 69, S21.

Norton, S.J. & Wier, C.C. Relation between simultaneous-masking psychophysical tuning curves and cubic-difference-tone amplitudes for $F_m < F_p$. Journal of Acoustical Society of America, 1982, 71, S68.

Schlauch, R.S., Wier, C.C. & Norton, S.J. The relations among critical bands, critical ratios, and intensity difference limens in man. Journal of Acoustical Society of America, 1982, 71, S72.

Schlauch, R.S., Wier, C.C. & Norton, S.J. An objective method of effective masking calibration. Paper presented at ASHA Convention, Toronto, Canada, 1982.

Norton, S.J. & Weber, D.L. Interrelations among combination tones, combination bands and suppression. Journal of Acoustical Society of America, 1983, 73, Suppl. 1, S92.

Neely, S.T. & Norton, S.J. A mathematical model of cochlear acoustic emissions. Paper presented at the VA Conference of Cochlear Emissions, Irvin, CA. August 22, 1984.

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Mott, J.B. & Norton, S.J. TTS and psychophysical suppression effects. Journal of the Acoustical Society of America, 1985, 77, 583.

Norton, S.J. & Neely, S.T. Latency of click-evoked oto-acoustic emissions in humans. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, February 5, 1985.

Neely, S.T., Norton, S.J., Gorga, M.P. & Jesteadt, W. Latency of oto-acoustic emissions and ABR wave V using tone-burst stimuli. Journal of the Acoustical Society of America, 1986, 79, 57.

Norton, S.J., Champlin, C.A. & Mott, J.B. Effects of intense sound exposure on spontaneous oto-acoustic emissions. Journal of the Acoustical Society of America, 1986, 79, 55.

Champlin, C.A. & Norton, S.J. The effects of intense pure tones on different spontaneous oto-acoustic emissions in the same ear. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, February 1, 1987.

Keener, S.K. & Norton, S.J. Electrical bone-conduction thresholds above 8 KHz in noise-exposed listeners. American Speech-Language-Hearing Association Convention, New Orleans, November, 1987.

Mott, J.B., Norton, S.J., Neely, S.T. & Warr, W.B. Changes in spontaneous oto-acoustic emissions produced by stimulation of the contralateral ear. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, February 1, 1987.

Norton, S.J., Champlin, C.A. & Mott, J.B. The behavior of spontaneous oto-acoustic emissions from human ears following exposure to intense pure-tone stimuli. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1987.

Karlsen, E.A., Norton, S.J. & Daniels, H.A. Extracorporeal shockwave lithotripsy: is it safe for your ears. Paper presented at the American Speech-Language-Hearing Association Convention, 1988.

Nelson, P.B. & Norton, S.J. Gap detection and discrimination in complex speechlike signals. Journal of the Acoustical Society of America, 1989, 86, S122.

Norton, S.J., Bargones, J.Y. & Rubel, E.W. Development of oto-acoustic emissions in gerbils: evidence for changes in the cochlear micromechanics underlying place code changes. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1989.

Norton, S.J., Ferguson, R. & Mascher, K. Evoked oto-acoustic emissions and extratympanic cochlear microphonics recorded from human ears. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1989.

- Arts, A., Norton, S.J. and Rubel, E.W. Influence of Perilymphatic tetrodotoxin and calcium concentration on hair cell function. Paper presented at the Midwinter Meeting of the Association for Research in Otolaryngology, 1990.
- Brown, S. & Norton, S.J. The effects of contralateral acoustic stimulation on the acoustic distortion product, 2F1-F2. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1990.
- Geier, L. & Norton, S.J. Effects of limiting electrode bands on Nucleus-22 implantees' speech discrimination. Paper presented at American Speech-Language-Hearing Association. 1990.
- Nelson, P. & Norton, S.J. Glide discrimination in complex signals. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1990.
- Norton, S.J. & Hays, J. Effects of prior stimulation on oto-acoustic emissions. Poster presentation at the IVth International Conference on Effects of Noise on the Auditory System, Beaune, France, 1990.
- Norton, S.J., Tucci, D. and Rubel, E.W. Comparison of acoustic and neural responses from avian ears following gentamicin. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1990.
- Norton, S.J. & Widen, J.E. Evoked oto-acoustic emissions in infants and children. Double Mini-seminar presented at American Speech-Language-Hearing Association. 1990.
- Stover, L. & Norton, S.J. Age-associated changes in cochlear mechanics. Paper presented at the Midwinter Meeting of the Association for Research in Otolaryngology, 1990.
- Thompson, S.K., Norton, S.J. and Widen, J.E. Waardenburg Syndrome: A case of undetected hearing loss. Poster presented at American Speech-Language-Hearing Association. 1990.
- Hayes, J. & Norton, S.J. Sensitization and desensitization of evoked oto-acoustic emissions. Poster presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1991.
- Moxon, A.B., Norton, S.J., White, K. and Brehens, T. Evoked oto-acoustic emissions in neonatal screening and follow-up: clinical trials. Mini-seminar presented at the American Speech-Language-Hearing Association Convention, 1991.
- Nelson, P.B. & Norton, S.J. Relationships between psychoacoustic and speech perception performance in hearing-impaired listeners "say-stay" identification. Poster presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1991.

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- Nelson, P.B. & Norton, S.J. Relationship between psychoacoustics and "say-stay" identification in the hearing-impaired. Paper presented at the Meeting of the Acoustical Society of America, 1991.
- Rubel, E.W. & Norton, S.J. Vulnerability of oto-acoustic emissions as a function of stimulus level. Paper presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1991.
- Stover, L.J. & Norton, S.J. Comparison among different oto-acoustic emission phenomena. Paper presented at the Symposium "Oto-acoustic Emissions: Theory, Application and Techniques", 1991.
- Norton, S.J. & Harrison, W.A. Transient evoked otoacoustic emissions in normally-hearing and hearing-impaired children. Paper Presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1993.
- Mills, D.M., Rubsamen, R., Norton, S.J. & Rubel, E.W. The mammalian cochlea self-adjusts to achieve sharp tuning. Poster presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1993.
- Chang, K. & Norton, S.J., Efferent Mediated Changes in the QDT. Poster presented at the Mid-Winter Meeting of The Association for Research in Otolaryngology, 1995.
- Mills, D.M., Norton, S.J. & Rubel, E.W., Development of Active & Passive Processes in the Mammalian Cochlea. Poster presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1995.
- Norton, S.J., Physiological & Anatomical Studies of the Deafwaddler (dfw) Mutant Mouse. Poster presented at the Mid-Winter Meeting of the Association for Research in Otolaryngology, 1996.
- Chang, K. & Norton, S.J., The Efferents Play a Role in the Adaptation of the Cochlear Amplifier to Acoustic Over-Stimulation. Poster presented at the Mid-Winter Meeting of The Association for Research in Otolaryngology, 1996.
- Martin, D., Mascher, K., Temple, B.L. & Norton, S.J. Filtering of Distortion Product Otoacoustic Emissions in Normal Mice and Deaf Waddler Mouse Mutants. Poster presented at the Midwinter Meeting of the Association for Research in Otolaryngology, February, 1997.
- Franck, K. and Norton, S.J. The electrically evoked whole-nerve action potential: Fitting Applications for Cochlear Implant Users. Poster presented at the Midwinter Meeting of the Association for Research in Otolaryngology, February, 1999.

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Sie, KC.Y., deSerres, L.M. and Norton, S.J. Age-related Sensitivity to Cisplatin Ototoxicity in Gerbils. Poster presented at the Midwinter Meeting of the Association for Research in Otolaryngology, February, 1999.

Naidu, S. and Norton, S. Acquisition of auditory language skills by children with cochlear implants using Signed English. Poster presented at the 9th Symposium - Cochlear Implants in Children Meeting, 2003.

Ehrmann, E. and Norton, S. Look before you LEAP: Proactive technical assistance. Paper presented at the Annual EHDI Meeting, 2005.

Norton, S.J, Folsom, R and Ehrmann, E. Risk Factors for Progressive and Late-Onset Hearing Loss. Paper presented at NHS Meeting, 2006.

Norton, SJ. Decreases in Nucleus CI24 Patient Performance Associated With Increases In MP1 Impedance. Paper presented at the 11th International Conference on Cochlear Implants in Children. Charlotte, NC April 14-16, 2007.

Norton, SJ. Transition from Early Intervention to Preschool: What Determines Preschool Environment for Children with Cochlear Implants? Paper presented at the 12th International Conference on Cochlear Implants in Children. Seattle, WA, June 16-19, 2009.

Norton, SJ, Bishop, R., Bourse-Archarro, T., Corkrum, K., Meredith, M. Robinson, S. & Watson, N. Communication Mode, SES and Auditory Language Development Following Cochlear Implantation. Paper presented at the 13^h International Conference on Cochlear Implants in Children. Chicago, IL, July 14-1, 2011.

Meredith, M., Norton, SJ, Sie, KCY, & Rubinstein, JT, Cochlear Implantation for Children with Significant Low-Frequency Residual Hearing. Paper presented at the 13^h International Conference on Cochlear Implants in Children. Chicago, IL, July 14-1, 2011.

Melick, A. & Norton, SJ, Efficacy of the Psychosocial Evaluation: 10 Year Retrospective Review. Poster presented at the 13^h International Conference on Cochlear Implants in Children. Chicago, IL, July 14-1, 2011.

Meredith, M., Sie, KCY, & Rubinstein, JT, Norton, SJ, Pediatric Cochlear Implantation of Children with Steeply Sloping Hearing Loss. Poster presented at the 2013 Conference on Implantable Auditory Protheses. July 14-19, 2013. Lake Tahoe, CA

Invited Talks

Norton, S.J. Cochlear Emissions. Invited paper, American Speech-Language-Hearing Association Convention, Washington, DC, November, 1985.

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- Norton, S.J. Evoked oto-acoustic emissions: A new tool for studying the effects of intense sound on the human cochlea. Invited paper presented to the National Hearing Conservation Association, 1991.
- Norton, S.J. Otoacoustic Emissions. Invited talk presented at Canadian Speech-Language & Hearing Association, 1991.
- Norton, S.J. & Widen, J.E. Oto-acoustic emissions in infants and young children. Invited paper presented at the Symposium "Oto-acoustic Emissions: Theory, Application and Techniques", 1991.
- Norton, S.J. The effects of being a newborn on otoacoustic emissions. Journal of the Acoustical Society of America, 1992, S409. (Invited Paper)
- Norton, S.J. The number and nature of OAE generators. Journal of the Acoustical Society of America, 1992, S356. (Invited paper)
- Norton, S.J. Applications of transient evoked otoacoustic emissions with pediatric populations. Invited paper, Symposium on Objective Audiometry, 1992, sponsored by CHABA.
- Norton, S.J. Basic and clinical applications of otoacoustic emissions. Invited paper. XXI International Congress of Audiology, 1992.
- Norton, S.J. Clinical Applications of Otoacoustic Emissions. Invited paper presented at British Columbia Association of Speech-Language Pathologists & Audiologist, 1992.
- Norton, S.J. Characteristics of transient evoked otoacoustic emissions in pediatric populations. Invited paper, NIH Consensus Development Conference, Early Identification of Hearing Impairment in Infants and Young Children, 1993.
- Norton, S.J. Basic and Clinical Applications of Otoacoustic Emissions. Invited paper, 1993 Conference on Developments in Pediatric Audiology: Assessment and Amplification, Boys Town National Research Hospital, 1993.
- Norton, S.J. Transient Evoked Otoacoustic Emissions on Developments in Pediatric Audiology and Amplification in Normal Hearing and Hearing Impaired Children. Invited paper, 1993 Conference on Developments in Pediatric Audiology: Assessment and Amplification, Boys Town National Research Hospital, 1993.
- Norton, S.J., Cone-Wesson, B., Folsom, R., Gorga, M., Sininger, Y., Widen, J. & Vohr, B. Unresolved Issues in Neonatal Hearing Screening. Invited paper, American Speech-Language Hearing Association Meeting, 1993.
- Norton, S.J., Clinical Applications of Otoacoustic Emissions. Invited talk presented at Ohio Speech & Hearing Association, 1993.

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Norton, S.J., Infant Screening & Pediatric Testing with Otoacoustic Emissions. Invited talk presented at American Academy of Audiology, 1994.

Norton, S.J., Clinical Applications of OAEs in Special Populations. Invited talk presented at ASHA Workshop on Integrating Physiological Measures, 1994.

Norton, S.J., Universal Neonatal Hearing Screening, Invited talk presented at Minnesota Speech & Hearing Association, 1995.

Norton, S.J., Development of the Mammalian Cochlea. Invited talk presented at the American Speech-Language & Hearing Association National Convention, 1995.

Norton, S.J. Development of Otoacoustic Emissions and Cochlear Function. Invited talk presented at the the Midwinter Meeting of the Association for Research in Otolaryngology, February, 1999.

Norton, S.J. Cochlear Implants in Children. Invited talked presented at the Alaska State Speech & Hearing Meeting, 2001.

Norton, S.J. Cochlear Implants in Children. Invited talked presented at the Washington State Speech & Hearing Meeting, 2002.

Norton, S.J. Early Hearing Loss Detection, Diagnosis and Intervention (EHDDI) in Washington. Invited talked presented at the Washington State Speech & Hearing Meeting, 2002.

Norton, S.J. Speech Understanding in Noise by Children with Cochlear Implants. Paper presented at the Conference on Implantable Auditory Prostheses. Asilomar, CA July 31 - August 4, 2005

Norton, S.J., Bishop, R., Bourse-Archarro, T., Corkrum, K., Meredith, M. Robinson, S. & Watson, N. Communication Mode, SES and Auditory Language Development Following Cochlear Implantation. Paper presented at the 13^h International Conference on Cochlear Implants in Children. Chicago, Il, July 14-16, 2011.

Meredith, M., Norton, S.J., Sie, K.C.Y., & Rubinstein, J.T., Cochlear Implantation for Children with Significant Low-Frequency Residual Hearing. Paper presented at the 13^h International Conference on Cochlear Implants in Children. Chicago, Il, July 14-16, 2011.

Melick, A. & Norton, S.J., Efficacy of the Psychosocial Evaluation: 10 Year Retrospective Review. Poster presented at the 13^h International Conference on Cochlear Implants in Children. Chicago, Il, July 14-1, 2011.

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Meredith, M., Sie, KCY, & Rubinstein, JT, Norton, SJ, Pediatric Cochlear Implantation of Children with Steeply Sloping Hearing Loss. Poster presented at the 2013 Conference on Implantable Auditory Protheses. July 14-19, 2013. Lake Tahoe, CA