

**CURRICULUM VITAE**  
**Joseph P. Walton, Ph.D.**

**Personal information**

Address:

Department of Communication Sciences and Disorders  
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Birth place Fort Knox, KY

**Education**

1976	B.A. (Hearing Science)	University of Florida
1982	M.A. (Audiology)	University of Florida
1984	Ph.D.	University of Florida

**Employment**

9/84 to 8/90	Assistant Professor, Dept. of Surgery, Division of Otolaryngology, University of Rochester
9/86 to 6/87	Adjunct Assistant Professor, Center for Brain Research, University of Rochester
9/97 to present	Adjunct Associate Professor, Dept. of Communication Disorders, University of Buffalo
9/99 to present	Associate Professor, Dept. of Neurobiology and Anatomy, University of Rochester
9/90 to 10/10	Associate Professor, Dept. of Otolaryngology, University of Rochester
10/10 to present	Professor, Dept. of Communication Sciences and Disorders and School of Aging Studies, University of South Florida

**Certification and Licensure**

New York State Audiology License, 1984 - 2010  
Certificate of Clinical Competency of Audiology American Speech, Language and Hearing Association, 1984 - present

**Hospital Appointments**

1984 - 2010 Clinical Audiologist Strong Memorial Hospital, Rochester, NY

**Mentorship**

Adithya Chandreqowda	PhD Student Lab Rotation	2011-present
Alex Elkins	AUD Student Advisor	2011-present
Paulcy Pynadath	AUD Student Advisor	2011-present
Adam Dziorny	MD/PhD Co-Advisor	2007-2010
Daniel Stolzberg	Doctoral Student Co-Advisor	2009-present







P.I.: Joseph P. Walton, Ph.D.  
Total Costs: \$25,000

National Institute on Aging: "Neuropsychology of Music in Aging and Alzheimer's Dementia"

P.I.: Kenneth P. Swartz, Ph.D.  
Co-I.: Joseph P. Walton, Ph.D.  
Effort: 10%  
Direct Costs: \$350,000  
Inclusive Dates: 3-1-90 to 2-28-92

NIH-NIDCD: "Neural Basis of Music Cognition"

P.I.: Edwin C. Hantz, Ph.D.  
Co-I.: Joseph P. Walton, Ph.D.  
Effort: 10%  
Direct Costs: \$370,426  
Inclusive Dates: 4-1-90 to 3-31-92

**Peer Reviewed Publications**

Margolis, R., Frisina, R., Walton, J. (in press) AMTAS® - Automated Method for Testing

temporal processing deficits within the murine auditory brainstem. J. Comp. Neurol. 506: 1003-1017, 2007.

Barsz, K., Wilson, W., and **Walton, J. P.** Reorganization of receptive field maps following



- Dziorny A.C., Luebke A.E., Walton J.P. (2009) Rescuing temporal processing with a novel augmented acoustic environment in an animal model of congenital sensorineural hearing loss: Is there a critical period? Assoc. Res. Otolaryngology Abstracts.
- Vollo, J., Poleskaya, O., Luebke, A.E., Collins, D., Zhu, X., Walton, J.P., Frisina, R.D., Dewhurst, S. (2009) Novel cochlear-specific isoform of mixed lineage kinase 3. Society for Neuroscience.
- Dziorny A.C., Luebke A.E., Walton J.P. (2009) Rescuing temporal processing with a novel augmented acoustic environment in an animal model of congenital sensorineural hearing loss: Is there a critical period? Assoc. Res. Otolaryngology Abstracts.
- Dziorny A.C., Luebke A.E., Walton J.P. (2008) Central auditory temporal and spectral processing deficits in the prestin-null mouse. Program No. 168, Society for Neuroscience.
- Brimijoin, W. O., Walton, J. P. (2008) Aging Affects Nonlinear Features of Post-Excitatory Suppression in the Mouse. Assoc. Res. Otolaryngology Abstracts.



- Allen P.D., Barsz K., Ison J.R., Walton J.P.(2005) Effects of age on behavioural and electrophysiological measures of auditory signal-in-noise processing. Program No. 164.3. Washington, DC: Society for Neuroscience, 2005.
- Barsz, K. and Walton, J.P. Masked Thresholds in the Inferior Colliculus: Relationships to Gap Encoding and Frequency Selectivity. Assoc. Res. Otolaryngology Abstracts, 2004.
- Walton, J.P., Schmuck, N., and Allen, P.D. Neural Correlates of Temporal Processing in the Inferior Colliculus of Mice Lacking the Kv1.1 Voltage-Gated Potassium Channel. Assoc. Res. Otolaryngology Abstracts, 2004.
- Barsz, K. Ison, J. R., Allen, P. D., Walton, J. P. Behavioral and single-unit IC responses of CBA mice to partially filled gaps in noise. Assoc. Res. Otolaryngology Abstracts, 2004.
- Schmuck, N., Allen, P., Ison, J., Walton, J.P. Neural representation of amplitude modulated sounds in the cochlear nucleus of mice lacking the Kv1.1 potassium channel. Assoc. Res. Otolaryngology Abstracts, 2004.

- sensorineural hearing loss affect the neural processing of temporal gaps in ongoing sound. Society of Neuroscience Abstracts 23, 2069 (1997).
- Walton, J.P. Barsz, K. and Thomas, G. Age-related changes in the neural processing of gaps presented in quiet and in background noise in the mouse inferior colliculus. Society of Neuroscience Abstracts 22, 1822 (1996).
- Spongr, V. Walton, J.P., Frisina, R., Kazee, A.M. and Salvi, R.J. Hair cell loss and synaptic loss in the inferior colliculus of the C57Bl/6 mouse and its relationship to abnormal temporal processing. Acoustical Signal Processing in the Central Auditory System, (1996).
- Lynch-Armour, M.A., Frisina, R.D., Walton, J.P., and Lynd-Balta E.L. Age-related plasticity in inputs to a functionally characterized region of the inferior colliculus of the CBA mouse model of presbycusis. Society of Neuroscience Abstracts 22, 1823 (1996).
- Benson, P.K. & Walton, J.P. Gap detection by inferior colliculus neurons is altered by minimal changes in envelope rise time. Assoc. Res. Otolaryngology Abstracts 19, 372 (1996).
- Walton, J.P. & Wilson, W.W. Properties of neurons specialized for encoding silent gaps in the presence of background noise in the inferior colliculus of the CBA mouse. Assoc. Res. Otolaryngology Abstracts 19, 371 (1996).
- Walton, J.P., Wilson, W.W., Mees, A.J., O'Neill, W.E. and Frisina, R.D. Age-related alteration in



- Walton, J.P., Meierhans, L.J., Karcich, K.J. and Frisina, R.D. Recovery of forward masking in a young and middle-aged mouse model of presbycusis. Assoc. Research Otolaryngology Abstr. 25, 1991.
- Ison, J.R., O'Neill, W.E. and Walton, J.P. Reflex inhibition by acoustic transients in aged CBA mice. Assoc. Research Otolaryngology Abstr. 157, 1991.
- Walton, J.P., Tacci, J. and Hendricks-Munoz, K. Therapeutic management alters hearing outcome in infants with PPHN. American Speech and Hearing Assoc. 232, 1990.
- Papso, C.P. and Walton, J.P. Classification of false-positive ABR findings in suspected retrocochlear pathology. American Speech and Hearing Assoc. 162, 1990.
- Walton, J.P., Frisina, R.D., Zettel, M., and Kelley, P. Differential calbindin-like immunoreactivity in the chinchilla superior olivary complex. Assoc. Research Otolaryngology Abstr. 264, 1990.
- Frisina, R.D., Zettel, M., Kelley, P. and Walton, J.P. Selective calbindin-like immunostaining in the chinchilla dorsal cochlear nucleus exceeds that of the ventral cochlear nucleus. Assoc. Research Otolaryngology Abstr. 389, 1990.
- Hantz, E., Walton, J.P., Crummer, G.C., Wayman, J., and Frisina, R.D. Event-related activity recorded from musicians, non-musicians, and absolute-pitch subjects during discrimination tasks involving musical timbre and melodic interval. Assoc. Research Otolaryngology Abstr. 160, 1990.
- Swartz, K., Walton, J.P., Hantz, E., Crummer, G.C., Goldhammer, E. and Frisina, R.D. Discrimination and neural processing of musical stimuli in young, old and Alzheimer's dementia subjects. Assoc. Research Otolaryngology Abstr. 160, 1990.
- Wayman, J., Frisina, R.D., Crummer, G.C., Hantz, E.C., Walton, J.P. Effects of musical training and absolute pitch ability on event-related activity in response to sine tones. Assoc. Research Otolaryngology Abstr. 179, 1990.
- McDonald, M., Walton, J.P. and Powell, K. Therapeutic intervention and incidence of hearing loss in children with bacterial meningitis. American Speech Hearing Assoc. 169, 1989.
- Kelly, P., Frisina, R.D., Zettel, M. and Walton, J.P. Calbindin-like immunoreactivity in the brainstem auditory system of the chinchilla. American Acad. Otolaryngology - AMA, 1989.
- Hantz, E.C., Walton, J.P., Crummer, G.C., Swartz, K.P. and Frisina, R.D. Towards the establishment of a neural basis of music cognition. Canadian Acoustical Society J. 1988.
- Walton, J.P., Orlando, M.S. and Frisina, R.D. Speech recognition in hearing impaired elderly subjects using adaptive filtering amplification. American Speech Hear. Assoc., 146, 1988.
- Chuang, S.A., Frisina, R.D., Crummer, G.C. and Walton, J.P. Effects of varying chord progressions on P3 event-related potentials in musicians and non-musicians. J. Acoustical Society of America S26, 233 1988.
- Crummer, G.C., Walton, J.P., O'Neill, W.E. and Frisina, R.D. P3 event-related potentials recorded from musicians and non-musicians during discrimination tasks involving musical sounds. Assoc. Research Otolaryngology Abstr. 11, 1988.
- Orlando, M.S. and Walton, J.P. Effects of age, sensorineural hearing loss and stimulus rate on the auditory brainstem response. American Speech Hearing Assoc. 29, 133, 1987.
- Walton, J.P. and Orlando, M.S. Maturation changes in the auditory brainstem response using high stimulus rates. American Speech Hearing Assoc. 29, 133, 1987.
- Walton, J.P. and Teas, D.C. Differential masking of high and mid-frequency components of the cochlear action potential. American Speech Hearing Assoc. 28, 197, 1986.

- Walton, J.P., Dalzell, L.E. and Hendricks-Munoz, K. Sensorineural hearing loss in infants with persistent fetal circulation. American Speech Hearing Assoc. 27, 152, 1985.
- Walton, J.P., Dalzell, L.E. and Merle, K.M. Auditory brainstem response in at-risk infants with normal hearing. American Speech Hearing Assoc. 27, 185 1985.
- Walton, J.P., Teas, D.C. and Dolan, D.F. The relation between the cochlear action potential and discharges of auditory nerve fibers elicited by a 2.5 kHz filtered click: Application of a segmental model. Assoc. Research Otolaryngology Abstr. 8, 77, 1985.
- Dolan, D.F., Teas, D.C. and Walton, J.P. Developmental changes in physiological responses of auditory nerve fibers in kittens. Assoc. Research Otolaryngology Abstr. 7, 60, 1984.
- Gerhardt, K.G. and Walton, J.P. Ultra-audiometric hearing sensitivity: A review and case study. FL Speech, Language-Hearing Assoc. Abstract 1983.
- Gerhardt, K.G., Walton, J.P., Moul, M.P. and Helper, E. Binaural acoustic-reflex activity following noise exposure in chinchilla. American Speech and Hearing Assoc. 25, 159, 1983.
- Teas, D.C., Hill, R.E., Dolan, D.F., Walton, J.P., Patterson, J. and Burdick, C. Spectrum of CM produced by high-intensity low frequency noise bands in chinchilla. J. Acoustical Society of America 67, Suppl. 588(A) 1980.
- Teas, D. C., Hill, R. E., Dolan, D. F., Walton, J. P., Patterson, J. and Burdick, C. Acoustic properties of external auditory canal in chinchilla, guinea pig, and man. J. Acoustical Society of America 67, Suppl. 588(A) 1980.

### **Invited Talks**

“Age-related changes in neural processing of complex sounds: Implications of a loss of inhibition in the auditory midbrain” Communication Sciences Dept., University of Buffalo. November 2009.

“Neural correlates of temporal processing deficits in a mouse model of presbycusis, sensory impairment, and treatment induced plasticity” Dept. of Otolaryngology Research Forum. February 2008.

“Neural correlates of temporal processing deficits in a mouse model of presbycusis” Society for Neuroscience, Mini-symposium. San Diego, CA, November 2007.

“Molecular genetics and the biology of deafness: The potential impact,” Rochester School for the Deaf, Rochester, NY, February, 2002

“Neural correlates of temporal processing deficits in the inferior colliculus of aged mice,” Acoustical Society of America, Atlanta, GA, June 2000.

“Functional specialization of auditory midbrain neurons for encoding sound intensity decrements in the presence of background noise,” Advances in Hearing Science, University of Syracuse, June 1999.

“The efficacy of universal newborn hearing screening,” Grand Rounds, University of Buffalo,



"Neural basis of music cognition: Biomedical implications and future directions", 1988 Symposium - Music and Medicine, University of Rochester, June 30, 1988.

"Incidence and etiology of sensorineural hearing loss in infants with persistent fetal circulation", Developmental Research Seminar Series, Psychology Department, University of Rochester, February 11, 1987.

"Detection of hearing loss in children", Board of Cooperative Education Services, State of New York, Rochester, New York, December, 1986.

"Auditory brainstem response in detection of eighth nerve and brainstem lesions", Otolaryngology Associates, Waterville, Maine, August, 1986.

"Current status of auditory brainstem response testing in the neonatal high-risk population", Pediatric Grand Rounds, Rochester General Hospital, May, 1986.

"Detection of hearing loss in at-risk infants", NYS-ASHA, April, 1986.

"Assessment of hearing in infants using the auditory brainstem response", New York Speech and Hearing Association annual meeting, April, 1986.

"Encoding of speech by the peripheral auditory system", Department of Audiology, University of Rochester Medical Center, Inservice, September, 1985.

"Auditory brainstem response in neurological and auditory assessment", Genesee Valley Speech and Hearing Association, September, 1985.

"Diagnostic significance of the acoustic reflex in retrocochlear pathology", Rochester Otolaryngology Seminars, Rochester Academy of Medicine, February, 1985.

"The new frontier: The role of molecular biology in treating genetic hearing loss," Genesee Valley Speech and Hearing Association, Rochester, NY, March 2001.

"Effects of Aminoglycosides on Infant Hearing Sensitivity", Department of Audiology, University of Rochester Medical Center, In-service, November, 1984.

"Maturation of the Human Auditory Brainstem Response", Department of Otolaryngology, University of Rochester, School of Medicine, March, 1984.

"Frequency Specificity of the Cochlear Action Potential Derived from Auditory-Nerve Fiber Responses", Department of Communicative Disorders, Northern Illinois University, February, 1984.

**Reviewer for Journals:** Journal of Neuroscience, Neuroscience, Journal of Neurophysiology, Hearing Research, Ear and Hearing, International Journal of Audiology, Pediatrics, Journal of Speech and Hearing Research, Developmental Psychobiology, Journal of the Acoustical Society of America.