

Hannah J Stewart

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Research interests

- The effect of everyday hearing technology on audio-visual integration and its impact on language, cognition, academic ability and cortical acclimatisation.
- Children with atypical hearing including hearing loss and listening disorders.
- Using neuroimaging, EEG and MRI, to understand the underlying mechanisms of speech and non-speech listening skills in hearing impairment and developmental disorders.
- Creating a more realistic and child-friendly research and clinical environment.

Employment history

Research Fellow Psychology and Language Sciences	University College London, UK Aug 2019 - present
Maternity leave	Jan 2019 – July 2019
Research Fellow Communication Sciences Research Centre	Cincinnati Children's Hospital Jan 2017 – Jan 2019
Postdoctoral Scientist MRC Institute of Hearing Research	University of Nottingham, UK Aug 2016 – Dec 2016
Tutor (1 st and 2 nd year) Psychology	University of Nottingham, UK Aug 2013 – June 2016
Lab Technician Medical School	University of Aberdeen, UK Jan 2012 – Aug 2012
Tutor (Secondary school) Mathematics	Self employed Aug 2007 – June 2012
Research Assistant Psychology	University of Aberdeen, UK Summer 2008
Clinical Research Assistant Psychology	University of Aberdeen, UK Jan 2008 – Dec 2009

Education and qualifications

PhD Hearing and cognition	MRC Institute for Hearing Research, University of Nottingham, UK
Thesis: Auditory selective attention in typical development and Auditory Processing Disorder	2016
MSc Human Cognitive Neuropsychology	University of Edinburgh, UK
Thesis: Objective measurement of imitation in autism	2011
MA Psychology (First)	University of Aberdeen, UK
	2010
BSc Artificial Intelligence and Mathematics	University of Edinburgh, UK
	2007

Grants

Research

1. Moore, D. R., **Stewart, H. J.**, & Hunter, L. L. (2017 - 2020). Learning to listen in noise: A double-blind randomized control trial of a new noise reduction system. Oticon Foundation. \$310,000.
2. **Stewart, H. J.**, & Moore, D. R. (2018 - 2020). Assessment of virtual reality speech-in-noise. Flexi Grant, Action on Hearing Loss. £5,000.
3. **Stewart, H. J.**, Alain, C., & Moore, D. R. (2018 – 2019). A virtual reality listening test and training protocol. National Science Foundation: Engaging Learning Network. \$2,000.
4. **Stewart, H. J.** (2014). Lab exchange: Eight months in Claude Alain's lab at the Rotman Research Institute, Baycrest Hospital, Canada. ERASMUS MUNDUS Auditory Cognition Neuroscience. €15,000.
5. **Stewart, H. J.** (2012 – 2016). Doctoral stipend and tuition fees: Auditory learning and development. Medical Research Council, UK. £57,000.

Other

1. **Stewart, H. J.** (2017). Guarantors of Brain travel award. CHSCOM, Linköping, Sweden. £600.
2. **Stewart, H. J.** (2015). ERASMUS MUNDUS Auditory Cognitive Neuroscience travel award. BRAMS, Montreal, Canada. €800.
3. **Stewart, H. J.** (2015). HÖST, Karolinska Institutet, full scholarship. CHSCOM, Linköping, Sweden. £1,100.
4. **Stewart, H. J.** (2015). Experimental Psychology Society Grindley Grant (travel award). CNS, San Francisco, USA. £600.
5. **Stewart, H. J.** (2015). University of Nottingham Graduate Travel Prize. CNS, San Francisco, USA. £500.

Publications

Published

1. **Stewart, H. J.**, Cash, E. K., Pinkl, J. T., Nakeva von Mentzer, C., CCHMC Division of Audiology, Hunter, L. L., & Moore, D. R. (In press, *Ear and Hearing*). Adaptive hearing aid benefit in children with mild/moderate hearing loss: A registered, double-blind, randomized clinical trial.
2. Petley, L., Hunter, L. L., Motlagh Zadeh, L., **Stewart, H. J.**, Sloat, N. T., Perdew, A., Lin, L., & Moore, D. R. (2021). Listening difficulties in children with normal audiograms: Relation to hearing and cognition. *Ear and hearing*, *42*(6), 1640.
3. Hunter, L. L., Blakenship, C., Lin, L., Sloat, N., Perdew, A., **Stewart, H. J.**, Moore, D. R. (2021). Peripheral auditory involvement in childhood listening difficulty. *Ear and Hearing*, 10.1097/AUD.0000000000000899
4. Pinkl, J., Cash, E. K., Hunter, L. L., Ferguson, S., Evans, T., Nejmen, T., Hamilton, J., Moore, D. R. & **Stewart, H. J.** (2020). Short-term pediatric acclimatization to adaptive hearing aid technology. *American Journal of Audiology*, 1-17.
5. **Stewart, H. J.**, Martinez, J., Perdew, A., Green, C. S., & Moore, D. R. (2020) Auditory cognition and perception of action video game players. *Scientific Reports*, *10*, 14410.
6. **Stewart, H. J.**, Shen, D., Sham, N., & Alain, C. (2020) Involuntary orienting and conflict resolution during auditory attention: The role of ventral and dorsal streams. *Journal of Cognitive Neuroscience*, 10.1162/jocn_a_01594.
7. Moore, D. R., Hugdahl, K., **Stewart, H. J.**, Vannest, J., Perdew, A. J., Sloat, N. T., Hunter, L. L. (2020). Listening difficulties in children: Behavior and brain activation produced by dichotic listening of CV syllables. *Frontiers in Psychology*, *11*.

8. **Stewart, H. J.**, Amitay, S., & Alain, C. (2017). Neural correlates of distraction and conflict resolution for nonverbal auditory events. *Scientific Reports*, 7: 1595.
9. **Stewart, H. J.**, & Amitay, S. (2015). Modality-specificity of selective attention networks. *Frontiers in psychology*, 6: 1826.
10. Maidment, D. W., Kang, H. J., **Stewart, H. J.**, & Amitay, S. (2014). Audiovisual integration in children listening to spectrally degraded speech. *Journal of Speech, Language, and Hearing Research*, 58, 61-68.
11. **Stewart, H. J.**, & Amitay, S. Development of auditory attention: Distractibility and conflict resolution. In *LSCD 2014: Workshop on Late Stages in Speech and Communication Development* (116-118).
12. **Stewart, H. J.**, McIntosh, R., & Williams, J. H. G. (2013). A Specific Deficit of Imitation in Autism Spectrum Disorder. *Autism Research*, 6, 522-530.

Under review

1. **Stewart, H. J.**, Cash, E. K., Hunter, L. L., Maloney, T., Vannest, J., & Moore, D. R. (Ear and Hearing). Speech cortical activation and connectivity in typically developing children and those with listening difficulties. <https://doi.org/10.1101/2020.10.26.20218495>
2. **Stewart, H. J.** (Frontiers in Psychology). Auditory selective attention in school-aged children.

In preparation

1. **Stewart, H. J.**, Cash, E. K., Hunter, L. L., Tamm, L., Becker, S., Werner, T., Vannest, J., Peelle, J. E., & Moore, D. R. (In prep., Science). Auditory cortical networks in children with listening and attention disorders.
2. Ranjbar, P., **Stewart, H. J.**, Moore, D. R., & Nakeva von Mentzer, C. (In prep., Journal of Speech, Language, and Hearing Research). Sentence repetition in schoolchildren with sensorineural hearing loss: Keep it short and simple.
3. **Stewart, H. J.**, Cash, E. K., Pinkl, J. T., Ferguson, S., Martinez, J., Vannest, J., & Moore, D. R. (In prep., Human Brain Mapping). The listening brain: Children with mild to moderate hearing loss.
4. Cash, E. K., Pinkl, J. T., Ferguson, S., Vannest, J., Moore, D. R., & **Stewart, H. J.** (In prep, PLOS One). Artificial language learning in elementary children with listening and hearing impairments.

Professional activities

Talks (6 of 8)

1. **Stewart, H. J.** (2020, invited talk). *Speech and sound cortical connectivity in children with listening and attention disorders*. University of Potsdam, Germany
2. **Stewart, H. J.** (2020, invited talk). *Sound and speech cortical activation and connectivity in children with listening difficulties*. University College London, UK.
3. **Stewart, H. J.** (2018, invited talk). *Assessing how the developing brain listens*. University of Cincinnati, USA.
4. **Stewart, H. J.**, Martinez, J., Perdew, A., Green, C. S., Moore & D. R. (2018, invited talk). *Training auditory cognition and perception with 'traditional' video games*. Workshop on Realistic Sensation Technology (WORST) Symposium, Boston, USA.
5. **Stewart, H. J.**, Perdew, A., Martinez, J., Green, C. S., Moore & D. R. (2018). *Video game players' auditory cognition and perception*. Association for Research in Otolaryngology, San Diego, USA.
6. **Stewart, H. J.**, Amitay, S., & Alain, C. (2015). *The Test of Attention in Listening (TAIL): An event-related potential study*. CHSCOM, Linköping, Sweden.

7. **Stewart, H. J.**, McIntosh, R., & Williams, J. H. G. (2012). *Objective Measures of Imitation and Movement End-Point Re-Enactment in Autism*. International Meeting for Autism Research, Toronto, Canada.

Posters (15 of 29)

1. Hoyda, J. C., **Stewart, H. J.**, Vannest, J., & Moore, D. R. (2021). *Resting State fMRI Speech Network Connectivity in Children with and without Listening Difficulties*. The Organization for Human Brain Mapping, virtual.
2. **Stewart, H. J.**, Cash, E. K., Pinkl, J., Vannest, J., & Moore, D. R. (2021). *Statistical word learning: Elementary children with listening or hearing impairment*. American Auditory Society, virtual.
3. **Stewart, H. J.**, Pinkl, J., Cash, E. K., Dept. of Audiology, Hunter, L. L., & Moore, D. R. (2021). *Double-blind randomized clinical trial of children learning to use hearing aids*. American Auditory Society, virtual.
4. **Stewart, H. J.**, Cash, E. K., Pinkl, J., Vannest, J., & Moore, D. R. (2021). *Speech listening and cortical plasticity in children using hearing aids*. Association for Research in Otolaryngology, virtual.
5. **Stewart, H. J.**, Holland, S. K., Maloney, T., Sloat, N., Perdew, A., Hunter, L. L., Vannest, J., & Moore, D. R. (2018). *Speech processing and functional connectivity in children with and without listening difficulties*. Association for Research in Otolaryngology, San Diego, USA.
6. **Stewart, H. J.**, Leiken, K., Holland, S. K., Maloney, T., Sloat, N., Perdew, A., Hunter, L. L., Vannest, J., Moore, D. R. (2017). *Speech and non-speech cortical activation in children with listening difficulties using fMRI*. Auditory Cortex, Banff, Canada.
7. **Stewart, H. J.**, Perdew, A., Martinez, J., Vamosi, B., Giglia, E., Green, C. S., & Moore, D. R. (2017). *Effects of video games on auditory cognition & perception*. Engaged Learning Network, Games for Change, New York City, USA.
8. **Stewart, H. J.**, Barry, J. G., Akeroyd, M. A., & Amitay, S. (2017). *Selective attention difficulties in school-aged children with listening difficulties*. CHSCOM, Linköping, Sweden.
9. **Stewart, H. J.**, Barry, J. G., Akeroyd, M. A., & Amitay, S. (2017). *Selective attention and listening difficulties in noisy environments*. Symposium on Research in Child Language Disorders (SRCLD), University of Wisconsin-Madison, USA.
10. **Stewart, H. J.**, Barry, J. G., & Amitay, S. (2016). *Selective attention and Auditory Processing Disorder*. British Society of Audiology (BSA), Coventry, England.
11. **Stewart, H. J.**, Amitay, S., & Alain, C. (2015). *Test of Attention in Listening (TAiL): An ERP study*. BRAMS, Montreal, Canada.
12. **Stewart, H. J.**, Kang, H. J., Barry, J., Amitay, S. (2015). *The Test of Attention in Listening (TAiL): Development of Auditory Attention*. CHSCOM, Linköping, Sweden.
13. **Stewart, H. J.**, Amitay, S., & Alain, C. (2015). *Test of Attention in Listening (TAiL): An ERP study*. CNS, San Francisco, USA.
14. **Stewart, H. J.**, & Amitay, S. (2014). *Development of auditory attention: Distractibility and conflict resolution*. Late Stages in Speech and Communication Development 2014, UCL, England.
15. **Stewart, H. J.**, & Amitay, S. (2013). *How the Test of Attention in Listening (TAiL) relates to other tests of attention*. British Society of Audiology (BSA), Keele University, England.

Developed tools

Virtual reality speech in noise

In progress

A computer game to present speech in noise assessments in a virtual reality environment. Currently on Oculus Rift and Go. Suitable from age 8.

Paediatric Task Load Index

In progress

A tablet delivered questionnaire to measure perceived mental workload in children, based on the NASA-TLX. Suitable for children from age 6.

Test of Attention in Listening (TAiL)

A computer game to assess auditory selective attention. Suitable for children from age 4, and adults. <http://doi.org/10.17639/nott.370>

University of Nottingham

2018

Reviewer

Grants

RNID flexi grant review panel

2021 - present

Journals

Ear and Hearing; Frontiers in Psychology; Journal of Speech, Language, and Hearing Research; PLOS One; Scientific Reports; Trends in Hearing Loss

Professional membership

Cognition and Communication Consortium

2020 - present

American Auditory Society

2020 - present

Association for Research in Otolaryngology

2018 - present

National Postdoc Association

2017 - 2018

Administration

Athena Swan

MRC Institute of Hearing Research

I was one of the founding members of our group and collected data from staff for our first application to the scheme.

April 2014 - Dec 2016

Disability Officer

Aberdeen University Students Association

I worked to support, represent and raise awareness of the disabled community at campus.

Sept 2008 - June 2010

Public engagement

Director, Science Club

Cincinnati Children's Hospital

Teaching science in a non-traditional way. We grew from an after-school club to be part of the 3rd and 4th grade curriculums.

April 2017 - Jan 2019

Press

1. Stewart, H. J. (August 2018). Scientifically Speaking. AoHL magazine.
2. Cincinnati Children's Community Relations (March 2018). Science Club. <http://bit.ly/CCHscienceClub>
3. WCPO Cincinnati news (November 2017). Science Club. <http://bit.ly/WCPOscienceClub>