

Press release

**Wireless communication devices help children with autism to understand and engage more in class**

*New peer-reviewed research shows that wireless communication technology offers children with autism “clear listening and communication benefits,” with teachers reporting “consistent improvement in comprehension, attentiveness and classroom behavior.”*

**Stäfa, Switzerland (November 1, 2013) – A study published in *The Journal of Pediatrics* has shown that sustained use of wireless communication devices can help children with Autism Spectrum Disorder understand more speech in class, aid in their social interaction and improve educational outcomes.**

Autism spectrum disorder (ASD) is a neurodevelopmental condition with a range of behavioural symptoms including impaired social interaction and communication difficulties. Children with ASD often also experience problems processing sound<sup>1-3</sup>, which can further exacerbate their social difficulties.

The study, *The Use of Listening Devices to Ameliorate Auditory Deficit in Children with Autism*<sup>4</sup>, is the first of its kind to explore the sustained use of wireless listening technology for children with ASD in mainstream classroom environments. Led by Gary Rance, PhD of The University of Melbourne, the research evaluated the monaural (single-ear) and binaural (two-ear) sound processing skills among a group of 20 children with ASD – and sought to determine the extent to which personal wireless listening systems (specifically, Phonak inspiro microphones and Phonak iSense receivers) could enhance these children’s listening difficulties.

“The systems provided significant listening-in-noise, communication and educational benefits,” said Rance, who is Associate Professor at The University of Melbourne’s Department of Audiology & Speech Pathology. “The children could hear the teacher’s words better, communicate with their fellow students more effectively, and were generally more engaged in classroom activities than those not using wireless listening technology. Most of the children also wanted to keep using their devices after the trial had ended.”

The research involved 20 children with ASD - 10 primary school students and 10 secondary school students - aged between eight and 15 years. A control group of age- and gender-matched children was also evaluated in order to test the authors’ baseline assumption that children with autism experience more difficulty processing auditory information than those without ASD<sup>2-4</sup>.

Rance and his team evaluated each child's: auditory temporal processing (how the brain analyses sounds changing over time); spatial listening (how well both ears are used to localize and separate different sound sources); and functional hearing (speech understanding in background noise). Half (10) of the children with ASD then underwent a six-week device trial. During this period they wore Phonak iSense wireless receivers for up to seven hours per day, with teachers and parents speaking into Phonak inspiro transmitter microphones.

Wireless listening devices such as the Phonak inspiro/iSense systems used in the study - also sometimes referred to as frequency modulation (FM) systems - work by transmitting the words of a microphone-wearing speaker to small discrete ear-level receivers, bringing these words directly into the listener's ear. This approach has already been proven to improve the speech understanding of children with cochlear hearing loss<sup>5</sup>, central auditory processing deficit<sup>6</sup> and auditory neuropathy<sup>7</sup>.

- To read an abstract of the study, visit <http://www.jpeds.com/article/S0022-3476%2813%2901212-2/abstract>
- To learn more about Phonak iSense, please visit [www.phonak.com/isense](http://www.phonak.com/isense)

1 Alcántara JI, Weisblatt EJ, Moore BCJ, Bolton PF. Speech perception in high-functioning participants with autism or Asperger's syndrome. *J Child Psychol Psychiatry* 2004;45:1107-14.

2 Alcántara JI, Cope TE, Cope W, Weisblatt EJ. Auditory temporal-envelope processing in high-functioning children with autism spectrum disorder. *Neuropsychologia* 2012;50:1235-51.

3 Groen WB, van Orzo L, van der Horst N, Winkles S, van der Gago R-J, Butler JK et al. Intact spectral but abnormal temporal processing in autism. *J Aut Dev Disord* 2009;39:742-50.

4 Rance G, Saunders K, Carew P, Johansson M, Tan J, 2013, *The Use of Listening Devices to Ameliorate Auditory Deficit in Children with Autism*, *The Journal of Pediatrics* 2013; doi: 10.1016/j.jpeds.2013.09.041.

5 Hawkins D. Comparisons of speech recognition in noise by mildly- to moderately-hearing-impaired children using hearing aids and FM systems. *J Speech Hear Disord* 1984;49:409-18.

6 Johnstone KN, John AB, Hall JW, Crandell CC. Multiple benefits of personal FM system use by children with auditory processing disorder (APD). *Int J Audiol* 2009;48:371-83.

7 Rance G, Corben LA, DuBourg E, King A, Delatycki MB. Successful treatment of auditory perceptual disorder in individuals with Friedreich ataxia. *Neuroscience* 2010;171:552-5.

## About Phonak

Headquartered near Zurich, Switzerland, Phonak, a member of the Sonova Group, has developed, produced and globally distributed state-of-the-art hearing systems and wireless devices for more than 60 years. The combination of expertise in hearing technology, mastery in acoustics and strong cooperation with hearing care professionals allows Phonak to significantly improve people's hearing ability and speech understanding and therefore their quality of life.

Phonak offers a complete range of digital hearing instruments, along with complementary wireless communication systems. With a worldwide presence, Phonak drives innovation and sets new industry benchmarks regarding miniaturization and performance.



For more information, please visit [www.phonakpro.com](http://www.phonakpro.com) and [www.phonak.com](http://www.phonak.com) or contact:

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**Phonak – Life is on**

We are sensitive to the needs of everyone who depends on our knowledge, ideas and care. And by creatively challenging the limits of technology, we develop innovations that help people hear, understand and experience more of life's rich soundscapes.

Interact freely. Communicate with confidence. Live without limit. Life is on.