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The British
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Developmental Psychology Section

Neil O'Connor Award Winner

Handedness and language lateralisation in neurodevelopmental disorders

Dr Jessica Hodgson

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Dr Jessica Hodgson is an Associate Lecturer in Psychology at the University of Lincoln. Her research explores the relationship between language development, cerebral lateralisation and motor skill.

Jessica obtained undergraduate and master's degrees in Psychology from the University of Exeter, specialising in cognitive neuropsychology. This culminated in a project exploring neuroplasticity of language in adults with post-stroke aphasia. Following this research Jessica had a career in research management and governance within the NHS and for the Universities of Exeter and Bristol, which included managing the West Hub of the NIHR Mental Health Research Network. In 2012 Jessica was awarded a University of Lincoln PhD Studentship to investigate cerebral lateralisation of speech production and motor skill. This research included work with typically developing children and those with Developmental Coordination Disorder. Upon completion of her PhD in 2016, Jessica spent time as a post-doctoral Research Fellow in Clinical Neuroscience at the NIHR Hearing Biomedical Research Unit, University of Nottingham. Here Jessica's work used brain imaging to explore the cortical systems supporting language development in hearing and non-hearing children.

Jessica has worked with various neuroimaging techniques, including fMRI and functional Transcranial Doppler (fTCD) ultrasonography and functional Near Infrared Spectroscopy (fNIRS). She has experience in administering neuropsychological assessments to children and adults, and has worked with individuals who have developmental language and movement disorders, as well as with adults who have had acquired brain injury.

Abstract

My research explores the relationship between hemispheric speech lateralisation and motor skill involving the hands. Neuropsychologists have known for many years that these two functions are represented in a unique way in the human brain, and that being left or right handed is linked to the

way the brain is organised to support speech and language. Using a relatively new methodology in cognitive neuroscience; functional Transcranial Doppler (fTCD) ultrasound, I have investigated the associations between these two functions. In this talk I will present the findings from a series of studies which look at the links between speech lateralisation and handedness in different populations, including a developmental group and a group with a neuro-developmental disorder; Developmental Co-ordination Disorder (DCD). I will also present data from a new paradigm involving functional Transcranial Doppler imaging which aimed to quantify the hemispheric involvement in different motor skill/handedness tasks.