

CONDUCTING RESEARCH INTO ACTION

'Body Sense' study

Dr Joanne Camp, Dr Andy Bremner & Professor Elisabeth Hill

We are currently collecting data for the Body Sense study, in which we are interested in investigating the way in which people with different developmental disorders, including DCD, understand and perceive their own bodies, and how sensory and motor skills are useful for this.

Children with DCD and their parents have been visiting us at Goldsmiths at weekends and in school holidays to play several games for the study, including finding their hidden hand and seeing if they can guess which of two furry animals tickled their fingers – was it the penguin or the hedgehog? We've been playing some sense detective games and doing fine motor skill tasks as well.

We have now completed the data collection with our DCD group, and are finishing working with control groups of participants. Over the next few months we'll be analysing the data we've collected to look at patterns of results. Watch this space for the findings – in the meantime, here's our penguin and hedgehog who have been busy tickling people's fingers!



Understanding the brain in Developmental Coordination Disorder

Study 1: Dan Brady, Dr José van Velzen, & Professor Elisabeth Hill

We know that an area of the brain called the primary motor cortex plays an important role when we are learning and acquiring new motor skills, such as when we learn to type on a computer, or when we drive. If the typical activity of the primary motor cortex is disrupted in some way, it has been found that the ability to learn these new motor skills is also affected. However, no research has investigated whether the difficulties learning motor tasks in individuals with DCD is related to disrupted activity in the primary motor cortex.

To investigate this, we are using a technique called EEG, which measures naturally-occurring brain activity during different tasks (see picture below for an example of how EEG data is collected). Adults will learn a simple motor task, which involves tapping a sequence of numbers on a keypad, and the brain activity associated with this this motor task will be analysed. We expect that the brain activity measured during this task will differ between individuals with and without DCD, and this could provide some insight into the difficulties that those with DCD have when trying to learn new motor tasks.



Study 2: Xavier Job, Dr José van Velzen, & Professor Elisabeth Hill

We know that our senses provide important information to allow us to plan our reaching movements. For example, when reaching out to pick up a glass, vision provides us with details about its relative distance and size. When reaching towards our own bodies, as when feeding ourselves, touch provides us with information about the location of our mouth. The importance of this sensory information is reflected in enhanced brain responses to visual and tactile stimuli in the goal location of the reaching movement, i.e., the location of the glass on the table.



We are using the EEG technique to investigate whether individuals with DCD have different brain responses when they are planning their reaching movements. If there are differences, this could help to explain poor movement control in those with DCD.

If you are an adult with DCD and would like to take part in these studies, you can contact Dan Brady on dan.brady@gold.ac.uk and he will provide you with information about this research.



TAKING ACTION THROUGH RESEARCH

Well-being in DCD' study

Lisa Dockery & Professor Elisabeth Hill

Little research has focused on the psychological well-being of adults with DCD, although we know that the effects of DCD are evident well into adulthood.

We have asked participants to talk about the effects of DCD on their childhood and adulthood. Previous research suggests adults with DCD are less motivated to participate in physical activities and so might be at higher risk of poorer physical and mental health. Adults with DCD may also experience difficulties obtaining a DCD diagnosis due to a lack of standardised diagnostic criteria.

Fifteen individuals took part in this study – ten had a DCD diagnosis and five strongly suspected they had DCD. The interviews were analysed to find main themes throughout. One example of a theme was 'Ball/Team Sports' as participants often mentioned these were areas of difficulty in childhood and adulthood. Another example of a theme was 'Choice' as many participants said they now have more choice as adults about how to spend their leisure time.

Lisa will be presenting her results at the 11th International Conference on Developmental Coordination Disorder later this year and hopes to publish her findings next year, to highlight the importance of mental health for those with DCD in adulthood.

DISSEMINATING OUR RESEARCH

International Convention of Psychological Science 2015

On 12th March 2015, Elisabeth attended the International Convention of Psychological Science, in Amsterdam, The Netherlands (<http://icps.psychologicalscience.org/>). She discussed some of the findings of our Moving on Up Study, in which we found that children with motor difficulties, as well as those with a diagnosis of DCD, had difficulties with executive functions when they involved visuospatial or motor skills (see January newsletter for a summary). It is important to discuss our project findings internationally so that the important findings of our research, can be used across the world and not only in the UK. Participants from 75 countries attended this convention.

British Science Week

On 21st March 2015, during British Science Week, Elisabeth was asked to deliver an interactive session for 16-25 year olds with a diagnosis of DCD or dyspraxia to explain how their brains work. This followed a successful bid for funding made by Jessica Starns who founded and runs Dyspraxic Me, a peer support group for young adults aged 16-25.

We know that the brain of people with DCD works differently to the non-DCD brain although there are currently relatively few studies using brain imaging with individuals with DCD. Elisabeth's session focused on understanding why having a motor difficulty can affect all sorts of other areas of life including social interactions, physical and mental health, explained research findings to the group and discussed strategies for working with an individual's strengths and difficulties.

The session focused on the experiences and questions of those who had attended and was very dynamic and stimulating. Elisabeth and the team have also conducted similar sessions for teaching and clinical professionals, and are always willing to provide this type of training to help raise awareness of DCD and the difficulties associated with the disorder.

Academic Papers

The team has also been busy publishing our research in academic journals, which is important because it allows researchers across the world to keep up to date with the most recent findings in the field.

Two studies investigating the experience of receiving a diagnosis of autism spectrum disorder (ASD) have been published in leading ASD journals, the *Journal of Autism and Developmental Disorders (JADD)*, and *Autism*, and the latter paper has been the most downloaded on the *Autism* journal website since it was posted less than a month ago (on 25th March).

Study 1: Jones et al. (2014), *JADD*, 44, 3033-3044

J Autism Dev Disord
DOI 10.1007/s10803-014-2161-3

ORIGINAL PAPER

Experiences of Receiving a Diagnosis of Autism Spectrum Disorder: A Survey of Adults in the United Kingdom

Lydia Jones · Lorna Goddard · Elisabeth L. Hill · Lucy A. Henry · Laura Crane

Study 2: Crane et al. (in press), *Autism*.

Original Article

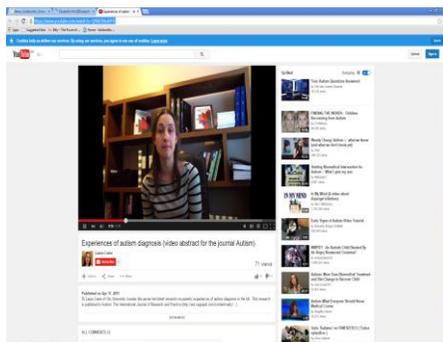
Experiences of autism diagnosis: A survey of over 1000 parents in the United Kingdom

Laura Crane¹, James W Chester², Lorna Goddard², Lucy A Henry¹ and Elisabeth L Hill²

The paper can be downloaded from <http://aut.sagepub.com/content/early/2015/03/24/1362361315573636.full>

The first ever video abstract for the *Autism* journal has been recorded for this paper and is available at:

<http://aut.sagepub.com/content/early/2015/03/24/1362361315573636/suppl/DC1>



You can find out more about the project at <http://www.autismdiagnosis.info/>.

Hayley and Elisabeth were also invited to write a review of executive functioning in DCD for *Current Developmental Disorders Reports*, which has now been published:

Leonard & Hill (2015). *Current Developmental Disorders Reports*, 2, 141-149.

Curr Dev Disord Rep
DOI 10.1007/s40474-015-0044-8

DISORDERS OF MOTOR (PH WILSON, SECTION EDITOR)

Executive Difficulties in Developmental Coordination Disorder: Methodological Issues and Future Directions

Hayley C. Leonard¹ · Elisabeth L. Hill¹



Autism
1-10
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aut.sagepub.com
SAGE

Two papers from the 'Moving on Up' study into executive functioning in children with motor difficulties and DCD have also been accepted for publication. We will update you with more information about these papers in the next issue.

Action Lab in the Media

In relation to the autism diagnosis project, Elisabeth was interviewed on BBC London's Breakfast Show with Paul Ross and Penny Smith on 25th March.

The questions focused on the process of obtaining a diagnosis, outcomes post-diagnosis, and reasons for the long and varied timescales to diagnosis (the average was three and a half years from raising a concern to a health professional).

The item also featured an interview with a parent about her experiences of obtaining a diagnosis with her child and post-diagnostic support.

The study was also reported on the web, e.g., <http://www.careappointments.co.uk/care-news/england/item/36834-study-finds-parents-frustrated-with-delays-in-autism-diagnosis>

A PARTING WORD

We would like to thank everyone who has participated in our studies so far:

The children, parents and teachers from Kender, Ivydale, Fairlawn, All Saints', Edmund Waller Primary School, Rosendale School, and Goose Green School (SE London); all the individuals with ASD and DCD, as well as their parents; Dr Andy Bremner and the Goldsmiths InfantLab team; the Reader Organisation; CareTrade UK.

If you are interested in learning more about our research, you can visit the Goldsmiths Department of Psychology website, www.gold.ac.uk/psychology

We look forward to updating you with all the news from the 11th International Conference on Developmental Coordination Disorder in the next issue!

Goldsmiths Action Lab Newsletter

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