

## **Developmental Coordination Disorder (DCD): Leaflet about Further & Higher Education**



### **Who is this information sheet for?**

These guidelines are intended to provide some brief information and guidance for families, teaching staff, clinicians and student support services. They focus particularly on the assessment process that should be adopted in response to difficulties in the FE/HE context, focusing separately on needs and diagnostic assessments. The guidelines have been produced through a consensus process, led by Movement Matters<sup>1</sup> and involving relevant stakeholders<sup>2</sup>.

### **What is DCD?**

Developmental Co-ordination Disorder (DCD), also known as Dyspraxia in the UK, is a common disorder affecting fine or gross motor co-ordination in children and adults. This lifelong condition is formally recognised by international organisations including the World Health Organisation. DCD is distinct from other motor disorders such as cerebral palsy and stroke and occurs across the range of intellectual abilities. Individuals may vary in how their difficulties present; these may change over time depending on environmental demands and life experience.

An individual's co-ordination difficulties may affect participation and functioning of everyday life skills in education, work and employment. Children may present with difficulties with self-care, writing, typing, riding a bike and play as well as other educational and recreational activities. In adulthood many of these difficulties will continue, as well as learning new skills at home, in education and work, such as driving a car and DIY.

There may be a range of co-occurring difficulties which can also have serious negative impacts on daily life. These include social and emotional difficulties as well as problems with time management, planning and personal organisation and these may also affect an adult's education or employment experiences.

### **Common characteristics of DCD in adults, with specific focus on FE/HE activities**

Adults with DCD in FE/HE education will experience a range of motor difficulties that may affect their education. Areas where this may be most apparent are in:

- Completing forms, particularly when these must be handwritten.
- Producing work legibly and quickly by hand, particularly in timed contexts such as lectures and exams.
- Writing on media such as white boards.
- Laboratory work or practical tasks, particularly if these require accuracy and precision, e.g. in science, health care, dentistry, mechanics, engineering.
- Working with tools and machinery, e.g. using a stapler or scissors, working a till.
- Physical tasks involving, for example, balance (e.g. carrying items while walking and manual dexterity – e.g. handwriting).

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<sup>1</sup> [www.movementmatters.org](http://www.movementmatters.org); consensus process coordinated by Professors Anna Barnett, Elisabeth Hill, Amanda Kirby & David Sugden.

<sup>2</sup> Association of Dyslexia Specialists in Higher Education (ADSHE); DCD-UK; The Dyspraxia Foundation; The professional association of teachers of students with specific learning difficulties (PATOSS); SpLD Test Evaluation Committee (STEC), SpLD Assessment Standards Committee (SASC).

On the whole, with extra time, practice and support, the consequences of these motor difficulties can be minimised/overcome.

Some students may also experience difficulties with:

- Finding their way to unfamiliar premises; they may find maps hard to use.
- Attending lectures and seminars on time; they may be late or overcompensate and arrive early.
- Assimilating concepts from lectures and reading; they may rely more than expected on text books.
- Time concepts; including forward planning and awareness of time passing.
- Self-organisation; including filing and sorting out lecture notes, assignment planning, multi-tasking.
- Anxiety, confidence and self-esteem, especially when work is accumulating or there are additional social difficulties.
- Willingness to discuss or disclose their difficulties to others.
- Physical health, including fitness and healthy eating.
- Social engagement with their peers as they may seem emotionally younger and struggle socially.

Outside of education, students with DCD may experience a range of difficulties which may, indirectly, affect their experience of FE/HE and their engagement with staff and students, including:

- Learning to drive a car.
- Self-care tasks such as putting on make-up, doing hair, shaving.
- Preparing meals in an organised or timely way, using specific utensils.
- Organisation of finances, bill payments etc.

### **Co-occurring disorders**

Co-occurrence is common with other developmental disorders and specific learning difficulties, and so individuals may have some of the 'signs and symptoms' but not necessarily meet the full criteria for diagnosis, but still have a level of impairment that impacts on their daily functioning in education. The cumulative effect and pattern of difficulties needs to be considered as well as the individual symptom presentation.

These are NOT part of DCD but may sit alongside it, and need to be considered when assessing any student with DCD.

### ***Dyslexia***

- Difficulties in phonological processing lead to poor spelling, as well as slow and, at times, inaccurate reading of unfamiliar words singularly and within text. Word and text comprehension can be slow and misunderstood if extra time is not available.
- Short-term memory may be weak, leading to difficulty remembering sequences of information presented orally.

### ***Attention Deficit Hyperactivity Disorder (ADHD)***

- Difficulties staying focused on a task for a period of time, may lead to information being missed in lectures, reading and assessment production taking longer than expected and planning tasks being less effective.
- Difficulties controlling impulsivity may mean work is not checked fully and can impact socially if the student responds too quickly or behaves in an inappropriate manner.
- Difficulties switching focus from one task to another may lead to reduced involvement in lectures, tutorials or other group activities.
- Difficulties with restlessness are most likely to be a feeling of internal restlessness for FE/HE students, although some students will find it harder to sit still in lectures.

### ***Autism Spectrum Disorder (ASD)***

- Difficulties in social interaction and communication may lead to unusual interactions, mis-communication and the student may not come across in the way s/he intends, for example.

- A need for routine can lead to inflexible and repetitive behaviours which can cause difficulties in a changing environment and performing in group settings, for example. It can also mean that the student becomes highly anxious when faced with unfamiliar situations, questions or dealing with new people.
- Anxieties can make it hard for a student with ASD to stay calm if s/he feels irritated or frustrated by other people or the environment. Some individuals may become confrontational.
- Sensory processing is atypical in some people with ASD, e.g. noise, lighting, temperatures or smells may all be under or over experienced leading to a lack of focus or heightened anxiety that can lead to a failure to attend.
- Motor difficulties can lead to difficulties with activities of daily living such as dressing/presenting themselves appropriately, which can also be affected by social engagement difficulties.

### *Dyscalculia*

- Difficulty understanding simple number concepts.
- Difficulty learning number facts and procedures, including mathematical formulae.
- Difficulty with estimation and order.
- Difficulty handling money and managing finances accurately.

### *Anxiety and depression*

- Recent research has highlighted greater risks in students with specific learning difficulties, and DCD for symptoms of anxiety and/or depression.
- Difficulties focusing, sleep difficulties, fatigue and obsessional behaviours may all be signs of anxiety or depression.
- If anxiety, depression or other aspects of mental wellbeing are a concern, a suggestion of seeing the GP should be given for onward referral and appropriate support. The Institution's Student Services department may also offer support, such as cognitive behavioural therapy.

### **Assessment protocol:**

Some assessments will have the purpose of focusing on the student's needs, while others may result in a formal diagnosis of DCD. Different professionals will be involved in each of these, but all must be made by a suitably qualified **and** trained assessor (e.g. teacher with a current SpLD Assessment Practising Certificate, Psychologist, Occupational Therapist, Physiotherapist, or Medical Professional). A larger number of professionals are able to provide a needs assessment.

At present, there are difficulties in making a formal diagnosis of DCD in adults since (1) few assessments are available that are standardised for this age group; (2) some tests have restrictions on their use; and (3) there are certain medical exclusions that form part of a formal diagnosis.

The assessment protocol below has been compiled to obtain the most detailed information possible given these considerations. **It is up to each assessor to evaluate their expertise in delivering each component of the assessment.**

Later aspects of the protocol below may be restricted to professionals with particular training. However, this should not preclude support for the individual or a written indication that s/he has DCD and should be referred for further assessment.

An assessment will consider the following:

#### A. Past history and current situation (information can be gathered by most professionals)

##### 1. **Detailed history taking from the adult.**

Information for this (if possible and where appropriate) should also be gathered from a family member or caregiver, including supporting evidence (where available) from school reports, handwriting samples, childhood diagnostic reports etc.

This should provide details of:

**Developmental history:** If there have been any delays in motor milestones such as walking, crawling.

**Medical history:** prematurity or a genetic disorder such as Klinefelter's Syndrome, Neurofibromatosis 1, BECCTS syndrome, epilepsy that could be a reason for the motor difficulties.

**Childhood history of motor delays & difficulties:** e.g. dressing, feeding writing, riding a bike, playing ball games.

**Other specific learning difficulties:** Did they have difficulties with reading, spelling, social skills, attention and concentration, listening and understanding?

**Educational history:** Were there difficulties in school, e.g. examinations, note taking, and sports. What reasonable adjustments were put in place? Did they have a 'statement' or other form of school based provision to support their needs?

**Has s/he been given a diagnosis in childhood-** if so, by whom?

Purpose: To provide information and evidence on motor difficulties (among other things) in childhood.

If there is no history of coordination difficulties in childhood, other causes of the presenting difficulties should be further explored.

Potential signs of specific learning difficulties should also be sought e.g. dyslexia, dyscalculia and other developmental disorders including ADHD, and ASD should also be considered.

Co-occurring psychological difficulties such as anxiety and depression should be considered as they are common and may impact on both the assessment and also type of support required. If there is concern referral to appropriate services should be suggested.

2. **Current situation:** questions relating to current experiences.

Detailed history of current functioning in the context of the student's course and course demands.

It is also useful to gain an understanding of the impact the difficulties may have on home life as this can create a 'tipping point' for the student if there are problems there as well. How are his/her difficulties impacting on him/her, e.g. delayed assignments, missing deadlines, increased anxiety, can't use notes from lectures?

What support has been given so far and by whom?

What reasonable adjustments does s/he think she needs or has tried already?

Purpose: To evaluate the current impact of fine and/or gross motor difficulties and other problems on the individual in education and at home. To ascertain the types of adjustments tried in the past or present and their effectiveness. This will help to plan appropriate support.

While collecting the information suggested in the above sections, keep a note also of your observations during the history taking session, e.g. the student appears very anxious, fidgety, upset during the session. If at the end of the history-taking session you are not qualified to continue an assessment, or the purpose of the assessment was to assess need, then any report written can, if appropriate, note difficulties *consistent with* DCD. Consider need associated with non-motor difficulties (see *Co-occurring disorders*, above; and *Further Assessments* for qualified practitioners, below). For assessments that require more formal information or diagnosis of DCD, see below.

B. Diagnostic motor assessments (often restricted and available to use by fewer professionals)

There are few formal instruments to support the diagnosis of DCD.

1. **Checklists/questionnaires:** Currently little available, where possible use the Adult DCD Questionnaire (ADC) (available for free using link below<sup>3</sup>).

The ADC considers not only the motor aspects of DCD but also asks about the commonly associated difficulties with executive functioning which can impact on educational and social success. This can be used as an aid to work through with the student to discuss how and where difficulties are impacting.

Purpose: To support history gathering and to aid choice of tools for further assessment and support for that individual.

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<sup>3</sup> The ADC is freely available from The Discovery Centre at:

<http://www.newport.ac.uk/research/researchcentres/Centres/Discovery%20Centre/Pages/default.aspx>

2. **Differential diagnosis:** Questions to ensure no other causes of apparent DCD, including acquired head injury, cerebral palsy, muscular dystrophy, genetic conditions such as Neurofibromatosis 1, Klinefelters Syndrome, epilepsy or acquired in adulthood such as Parkinson's disease, Multiple Sclerosis, etc.

If there is deteriorating or increasing difficulties with co-ordination either fine, motor or with balance then a GP consultation should be suggested.

Purpose: To rule out other reasons for co-ordination difficulties being present.

3. **Observations & examination to check exclusion criteria:** These should be undertaken where possible by appropriately trained professionals. However all assessors should pay attention to the quality of movements seen, and if concerned should consider onward referral (e.g. odd gait, tremor, obvious weakness, extreme difficulties with balance, one sided weakness).

Purpose: To confirm diagnosis or consider an alternative diagnosis may need to be considered and onward referral made.

4. **Motor assessments:** Currently there are limited assessment tools available that are normed for the specific age range seen within FE/HE. In some cases there are also restrictions to the professionals who can use them. The most commonly used tests are the Movement ABC-2 and the Bruininks-Oseretsky Test-2<sup>4</sup>.

The BOT-2 Short Brief Form is now available and has been normed to the age of 21 years (although not in the UK) and can be used by teachers. It yields a single score of overall motor proficiency. Training in delivery and interpretation is advised to ensure good practice and delivered by suitable qualified and experienced professionals before using this.

Purpose: To confirm diagnosis and provide an indication of the aspects of movement (e.g. fine or gross) that are problematic.

### C. Further assessments

Sometimes there is a need to follow-up aspects of performance further where there are indications, for example:

- a. Reported difficulties with recording at speed and accurately may indicate an assessment of handwriting skill. An examination of writing speed can be made with the DASH/DASH 17+.
- b. Specific symptoms relating to visual perception such as copying down notes from the board. The Beery VMI test can be used to investigate visual perceptual skills and also the Motor-Free Visual Perception Test (MVPT). However, it is also useful to take a history to ask about their visual symptoms and to check that the student has had their visual acuity checked in the past year.
- c. If co-occurring difficulties in other cognitive areas are suspected, evaluate these using appropriate cognitive tests, such as for language, reading, memory, attention and executive functions.
- d. Tests of intelligence (IQ) (e.g. Wechsler tests) may help to gain a profile of the student's strengths and limitations and the impact this may have on their learning. Examiners should be aware that motor difficulties may impact on tests involving drawing/writing or manipulative skills, particularly in timed tasks (e.g. puzzle assembly, block design) and consider this carefully in the interpretation of test scores. IQ tests should never be used as diagnostic tools for DCD and should not be relied upon for this specific purpose.
- e. Other assessments for specific learning difficulties may be indicated.

Purpose: To confirm the breadth and impact of motor difficulties, as well as co-occurring cognitive deficits in areas likely to be impacted in FE/HE.

### **References**

Barnett, A., Henderson, S.E., Scheib, B. & Schulz, J. (2007). *Detailed Assessment of Speed of Handwriting (DASH)*: Pearson.

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<sup>4</sup> The publishers can be contacted regarding training on these tests.

- Barnett, A., Henderson, S.E., Scheib, B. & Schulz, J. (2010). *Detailed Assessment of Speed of Handwriting (DASH 17+)*. Pearson.
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