

Developmental Coordination Disorder

Overview Description

The terms dyspraxia and developmental coordination disorder are often used interchangeably, even amongst health and educational professionals. Therefore, there is some potential for confusion for parents and teachers.

Dyspraxia

the difficulties or the *symptoms* associated with the development of co-ordination and organisation of movement.

Developmental co-ordination disorder (DCD)

the underlying cause, in some cases, of dyspraxia. (*acquired* dyspraxia may occur after injury or infection or dyspraxia symptoms may relate to a medical condition such as cerebral palsy or muscular dystrophy)

The DSM V criteria for DCD offers behavioural descriptors -

Performance in daily activities that require motor coordination is substantially below expectations given the person's chronological age and measured intelligence. This change may manifest as marked delays in achieving motor milestones (eg walking, crawling, sitting) and as dropping things, clumsiness, poor performance in sports or poor handwriting). The difficulties substantially interfere with academic achievement or activities of daily living.

A *cognitive* understanding of DCD continues to be the dominant theoretical approach in educational contexts. This theoretical approach considerably *extends* the impact and effects of difficulties associated with DCD to include executive functioning (working memory, inhibition control, attention and concentration) and sensory processing (the brain's receipt and response to information coming through the senses).

An NHS video offering James' Story - a parent's perspective -

<https://youtu.be/ncnVYonMA5Y>



Some children's definitions of dyspraxia (care of *The Dyspraxia Foundation*)

Dyspraxia (some people call it DCD) means that your brain is 'wired up' differently. It is a very clever brain that somehow has got 'mixed up' and that means that things to do with moving, learning and perhaps speaking too are harder for you.

It is not your fault and there are lots of ways to help you master the things you find difficult. You should be very proud of how much harder you work all the time in everything you do.' It is important that you know that you are not lazy, stupid, difficult or slow, and that you might at times feel angry because you get muddled or find some things so much harder than other people do. Things like writing or doing fiddly things like tying up laces, or riding a bicycle or games at school. Your thoughts and words might sometimes get jumbled up and you might know what you want to do but somehow just can't do it. You might forget things too.

These things happen because your brain works in a different way to most other people (like a super power that no one else has). It has very real strengths and you will probably be more creative, funny, and kind to others. You are full up with lovely qualities.

Dyspraxia doesn't go away but, with help, you can learn to live with it really well and can overcome many of the difficulties it causes.

Assessment

- Assessment can be accessed through a range of channels including Occupational Therapy services, Greater Manchester Dyslexia Service (<https://hsm.manchester.gov.uk/kb5/manchester/directory/service.page?id=mv4mklfELU>) and assessors accessed via PATOSS (www.patoss-dyslexia.org) a professional association of tutors with specialist qualifications to carry out assessments of DCD and other specific learning difficulties. Good assessment practice is multi-disciplinary and may involve Occupational Therapy, Physiotherapy, Speech and language Therapy, parents, Paediatricians, Educational Psychologist and SENDCo.
- The most commonly reported prevalence in school aged children is 5-6%, although this can be dependent of the number of OTs and physios and on methods of identification.
- The most commonly reported norm-ranked assessment used to determine DCD in school aged children is *The Movement Assessment Battery for Children (Movement ABC -2)* Henderson and Sugden 1992.
- Dyspraxia/DCD is classified as a disability under the terms of The Equality Act (HMSO 2010). Therefore, individuals are entitled to reasonable adjustments which enable equality of opportunity during examinations and tests. Examination access arrangements need to be pursued.

DCD and Inclusion

The following social and emotional implications of DCD have been identified through research

- Over time, children with DCD are more likely to demonstrate social and emotional difficulties (Smyth and Anderson 2000)
- Children with DCD report high levels of anxiety. (Mellor 1980)
- Children with co-ordination problems often try to cover up difficulties by playing the clown (Keogh et al 1979) or exhibiting disruptive behavior (Kalerboer et al 1993).
- Children with DCD are more at risk of bullying and are often unpopular with peers. Of those that were some had an aggressive/disruptive reputation and some had a sensitive/isolated reputation. (McGrath 1988)

Physical Education

Difficulties can be much more visible in these lessons and dyspraxic pupils can become anxious or embarrassed. The aims of the PE sessions could incorporate OT aims. More general programmes specifically designed for inclusive PE lessons with dyspraxic pupils (or small group work) can be found in the book referenced below (Dixon and Addy 2004)

Handwriting inclusion?

- Poor pencil grip, heavy or light pressure through the pencil
- Abnormal posture
- Awkward position of paper to child
- Inaccurate hand eye coordination
- Incorrect letter formation, incomplete letter formation, erratic sizing of letter, mixture of upper- and lower-case letters
- Poor alignment of writing on the page

How does DCD present challenges for

Maths

With an emphasis on handwriting this area can be overlooked. Difficulties with the following are common

- Writing numbers and symbols
- Forming shapes
- Laying out calculations
- Maintaining the correct place when following a visual procedure
- Manipulating practical maths materials (eg ruler, calculator)

General challenges

- Handwriting (legibility and fluency)
- Poor muscle tone resulting in fatigue and physical pain
- Speed of processing information
- Organizing their thoughts on paper
- Short term working memory
- Sequencing
- Reading fluency and accuracy
- Visual learning difficulties (tracking words or letter confusion)
- Stress, anxiety and concentration issues

Notes on interventions

A key reference in this area

Making Inclusion Work for Children with Dyspraxia: practical strategies for teachers (Dixon and Addy, 2014) Oxon: Routledge

Research suggests that the most effective interventions are those that target the **body functions needed to perform** activities such as sensory integration, muscle strength or core stability, suggesting that improved body function will lead to improved skill performance. For example, fine motor skill strengthening in young children.

Task orientated equipment can be extremely helpful and include writing slopes and postural support, pencil grips, modifications to the physical environment and adapted PE lessons (see references below).

Interventions to support peer relationships may be identified and addressed through the specific problem causing concern or social skills training in specific areas such as maintaining comfortable distance, etc.

As with other specific learning difficulties the emphasis of interventions shifts focus as a child gets older. Teaching new skills (e.g. precision teaching, handwriting programmes, activities to strengthen fine motor skills) may be more appropriate during the early stages of education but the emphasis will shift towards *coping strategies* (such as the use of assistive technologies, alternatives to copying and writing, use of verbal mediation) as a child moves into later key stages.

Children with DCD will benefit from support for their **organisational skills**. This may include having their equipment in a box or tray, use of cue cards (with pictures or writing), check lists, task sequence charts, alternatives to playgroup games, working backwards from goals, quiet areas, colour coding of doors, help with organizing dressing and undressing (working with parents).

Occupational and physiotherapy interventions.

For children these should ideally be fun games to be repeated for short periods on a regular basis. Body awareness and co-ordination training examples are *Fizzy and Clever Hands* programmes
www.nhsggc.org.uk/kids/healthcare-professionals/paediatric-occupational-therapy/fizzy-programme (recommended by NHS paediatric occupational therapy for schools).

Top
Tips!

For Early
Years

As children in the early years vary widely in their rate of development and access to movement opportunities, it is unusual that children under 5 years of age are diagnosed with DCD.

To support children's motor skills in the early years, it is important to allow them to access a range of activities tailored to enhance their gross and fine motor skills. Remember, before children can hold a pencil, they will first need to build up the muscles in their spine, shoulders and arms.

Children need opportunities to move in a range of ways and using a range of apparatus/tools in a safe way. Children may not have had access to a range of equipment before so it is crucial that staff encourage and praise children to experiment with movement. Ensure children are given enough time to complete tasks so that they do not feel rushed.

Useful resources and links

The Dyspraxia Foundation is a national network formed to raise awareness of and improve understanding of dyspraxia. It operates a support line and a wealth of information on the website as well as access to conferences and research developments. (Increased access for members.)

www.dyspraxiafoundation.org

Making Inclusion Work for Children with Dyspraxia: practical strategies for teachers
(Dixon and Addy, 2014) Oxon: Routledge

Understanding Developmental Dyspraxia; A Textbook for Students and Professionals
(Portwood, M 2000) London: David Fulton

Early Years links:

<https://dyspraxiafoundation.org.uk/children-and-families/supporting-your-child/pre-school-age-children>

<https://www.sheffieldchildrens.nhs.uk/services/dcd/independence-skills-videos/>