



Recognizing and Referring Children with Developmental Coordination Disorder

The role of the Occupational Therapist

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Children who are experiencing difficulties with handwriting and other fine motor activities at school are often referred for an occupational therapy (OT) assessment. Through the assessment process, the OT frequently sees that these problems are just the “tip of the iceberg” and the child is experiencing difficulties across many daily activities.

Recently, increased attention is being given to the motor difficulties of children who used to be labeled “clumsy” or “physically awkward” and who are now recognized as having Developmental Coordination Disorder (DCD). In the past, these children received little attention because many believed that they would overcome their difficulties with time. We now know that children’s motor coordination difficulties affect their ability to participate in everyday activities at home, at school and in the community and may impact significantly on their physical, social and emotional well-being.

OTs are ideally suited to identify children who may have DCD, to provide intervention and education, and to facilitate referrals for diagnosis and related services. While handwriting issues are the most obvious school difficulty, and are most recognized by teachers, it is important to thoroughly explore all areas of the child’s occupational performance. Self-care difficulties such as trouble doing buttons and fasteners, tying shoelaces, cutting with a knife and fork and managing toileting routines are commonly reported by parents. In school, children with DCD often have trouble sitting at their desk, moving around the classroom safely, completing work independently and quickly, organizing themselves and their belongings, participating in gym class and playing with other children at recess. Leisure activities can also be problematic as the child avoids most sports activities and active games, may be socially awkward and can become quite sedentary. OTs need to look beyond handwriting issues through careful history taking, observation and testing to determine if the child is showing the characteristics of DCD.



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Recognizing Children with Developmental Coordination Disorder (DCD)

DCD is a highly prevalent disorder (5-6% of school-aged children) so it is likely that there is at least one child with DCD in most classrooms. One of the challenges of identifying children with DCD is the variety of ways in which it is revealed. Some children have fine motor problems, some have gross motor problems, and some present with both. There are also varying degrees of severity. Regardless of presentation, all children with DCD will have difficulty learning new motor tasks. They may perform some tasks very well once learned, but they require more instruction, more practice, and take longer to master new motor skills that other children seem to learn effortlessly. Motor skills require effort so children with DCD are often slow to complete tasks and may appear inattentive. Because of the increased effort, they often fatigue easily.

Definition:

Developmental Coordination Disorder is an impairment in the development of motor coordination which significantly interferes with academic achievement and activities of daily living. DCD may exist in isolation OR may co-occur with other conditions such as learning disabilities or attention deficit disorder.

DSM V Diagnostic Criteria:

- A) Learning and execution of coordinated motor skills is below expected level for age, given opportunity for skill learning.
- B) Motor skill difficulties significantly interfere with activities of daily living and impact academic/school productivity, pre-vocational and vocational activities, leisure and play.
- C) Onset is in the early developmental period.
- D) Motor skill difficulties are not better explained by intellectual delay, visual impairment or other neurological conditions that affect movement.

(American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (5th ed.). Washington, DC: Author.)

Note: Criterion D requires the involvement of a family practitioner or developmental pediatrician to rule out other explanations for the clumsiness. In many states and provinces, only a medical doctor or a psychologist is permitted to make this diagnosis.

Common comorbidities: specific language impairment, attention deficit hyperactivity disorder, language-based and non-verbal learning disabilities.

For more information:

Missiuna, C., Pollock, N., Egan, M., DeLaat, D., Gaines, R., & Soucie, H. (2008). Enabling occupation through facilitating the diagnosis of developmental coordination disorder. *Canadian Journal of Occupational Therapy*, 75(1), 26-34. Also available at http://www.canchild.ca/Portals/0/references/pdf/DCD_CAOTarticle_Nov2007.pdf. doi:10.2182/cjot.07.012.

Assessment:

If you suspect that a child is demonstrating the characteristics of DCD, it is important to interview the parents and teachers carefully and understand the history of the presenting difficulties, and to determine which daily activities are impacted at home, at school and in the community. Because DCD has a high rate of co-morbidity, it is important to look beyond motor concerns as well. Ask questions about academic progress, social development, behaviour and attention. The *Canadian Occupational Performance Measure* (Law et al., 2005) and the *Perceived Efficacy and Goal Setting (PEGS) System* (Missiuna, Pollock, & Law, 2004) are tools that can be used to guide a clinical interview and/or gather information from different respondents about the impact of children's motor impairment on daily activities.

Standardized testing can help to confirm the presence of a motor impairment. The *Movement Assessment Battery for Children – Second Edition* (Henderson & Sugden, 2007) and the *Bruininks-Oseretsky Test of Motor Proficiency – Second Edition* (Bruininks, 2006) are two commonly used normative measures. During the motor assessment, clinical observations are critical. Watch how the child moves. Note their posture, their ability to use two hands together, the efficiency of their movements. How do they learn a novel task? Do they learn from practice or do they repeat the same mistakes? Do they position themselves correctly? Do they watch what they are doing? Do they have trouble judging force and distance? Do they become frustrated and give up quickly?

Intervention:

We now know from research evidence that the child's underlying motor impairment does not change regardless of the type of treatment used. However, we also know that the child can learn to do what they need to do to be successful and participate more fully. Education is a very powerful intervention tool: helping the child and those around him to understand why he struggles with certain activities can make a big difference. Learning or cognitive approaches have been shown to be effective in helping children to learn to do specific activities and then generalize that learning across tasks and situations. Accommodations, adapted equipment and environmental modifications at home and school are essential. Empowering parents so they can continue to advocate effectively for their child, maximize his/her strengths and steer them towards activities where they can be successful can help to reduce the risk of secondary emotional and physical health consequences.

For more resources and information about children with DCD, visit the DCD section of the *CanChild* Centre for Childhood Disability Research website:

dcd.canchild.ca

Cheryl Missiuna, PhD, OT Reg. (Ont.)

Professor and Scientist

School of Rehabilitation Science and *CanChild*

McMaster University, Hamilton, Ontario

missiuna@mcmaster.ca

Nancy Pollock, MSc, OT Reg. (Ont.)

Associate Clinical Professor and Scientist

School of Rehabilitation Science and *CanChild*

McMaster University, Hamilton, Ontario

pollock@mcmaster.ca

