



# Recognizing and Referring Children with Developmental Coordination Disorder

## What physicians need to know

When parents bring their children into the office for healthy child visits, you have a wonderful opportunity to explore many areas of child development including the child's cognitive, speech, language, gross motor and fine motor, social and self-care skills.

In recent years, increased attention is being given to developmental motor delays in children who used to be labeled "clumsy" or "physically awkward" but who are now recognized as having Developmental Coordination Disorder (DCD). Many physicians used to believe that these children were slow to develop or were low in athletic ability and would overcome their difficulties with time. We now know that poor motor coordination significantly impacts on physical, mental, social and emotional health.

It is important to differentiate the motor behaviours of children with DCD from other movement disorders in order to enable early identification and appropriate intervention. Children who are seen in the early years with motor difficulties may have disorders such as cerebral palsy, muscular dystrophy, global developmental delay, tumors or developmental coordination disorder. Some key questions may help you focus on differentiating between each of these patterns of motor behaviour.

In a young child, you might ask: Is there evidence of increased or fluctuating tone? Are coordination difficulties asymmetrical? Are the delays global in nature (beyond motor delay), a situation in which global developmental delay might be suspected? With a preschool or school-aged child, questions might centre on the history of the poor coordination. Have the difficulties been present from an early age or are of recent onset? Are the motor concerns appearing to worsen over time? Has there been a loss of previously acquired skills?

If a child does not show any of the above signs but demonstrates uncoordinated movements and motor abilities below those expected for their age, they may have developmental coordination disorder. This flyer will help you identify children at risk for DCD and recognize the need to intervene and to refer the child to other service providers for further evaluation. You may be concerned about diagnosing a child unnecessarily, but parents have told us that receiving the label of DCD was helpful as they understood the nature of their child's difficulties as motor-based, not cognitive or behavioural, and were then able to be supportive.

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## Recognizing Children with Developmental Coordination Disorder (DCD)

Described by those around them as being clumsy, children presenting with the characteristics of DCD are often referred to as “motor delayed.” You might hear or observe that these children have difficulty with skipping, hopping, jumping, and balancing. Handwriting, printing, copying, cutting and other fine motor tasks also present challenges. Children with DCD usually also have difficulty with zippers, snaps, buttons, tying shoelaces, throwing and catching balls, learning to ride a bicycle. Organizational skills might be less well developed than their peers. Motor skills require effort so children with DCD are often slow to complete tasks at school and may appear inattentive. Children with DCD usually begin to withdraw from and avoid motor and sports activities at an early age. They often seem verbally advanced but immature socially and might have behavioural or emotional problems.

### Definition:

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

### Diagnostic Criteria:

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- |                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>A) Learning and execution of coordinated motor skills is below expected level for age, given opportunity for skill learning.</p> <p>B) Motor skill difficulties significantly interfere with activities of daily living and impact academic/school productivity, prevocational and vocational activities, leisure and play.</p> | <p>C) Onset is in the early developmental period.</p> <p>D) Motor skill difficulties are not better explained by intellectual delay, visual impairment or other neurological conditions that affect movement.</p> |
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*(American Psychiatric Association. (2013). Diagnostic and statistical manual of mental disorders (DSM-V) (5th ed.). Washington, DC: Author.)*

**Note:** Motor **milestones** are often not delayed; the delay is usually in the acquisition of motor **skills**. Criterion D requires the involvement of a medical practitioner to rule out other explanations for the clumsiness\*. In the province of Ontario, only a medical doctor or a psychologist is permitted to diagnose DCD.

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**Prevalence:** 5-6% of the school-aged population, more commonly identified in boys

### For more information:

- Harris, S. R., Mickelson, E. C., & Zwicker J. G. (2015). Diagnosis And Management Of Developmental Coordination Disorder. *Canadian Medical Association Journal*, 187(9), 659-665. doi:10.1503/cmaj.140994.
- Gibbs, J., Appleton, J., Appleton, R. (2007). Dyspraxia or developmental coordination disorder? Unravelling the enigma. *Archives of Disease in Childhood*. 92, 534-539.
- Missiuna, C., Gaines, B. R., & Soucie, H. (2006). Why every office needs a tennis ball: A new approach to assessing the clumsy child. *Canadian Medical Association Journal*, 175(5), 471-473. Also available online at <http://www.cmaj.ca/cgi/content/full/175/5/471>. doi:10.1503/cmaj.051202.

**Characteristic Features of Children with DCD:**

- Clumsiness and/or poor coordination
- Handwriting / printing / copying difficulties
- Difficulty finishing academic tasks on time
- Require extra effort and attention when tasks have a motor component
- Difficulty with activities of daily living (e.g., dressing, feeding, grooming)
- Difficulty with sports and on the playground (last to “get picked” for teams)
- Difficulty learning new motor skills
- May look awkward – either squirmy and floppy, or rigid and stiff – when trying to do something like throw or catch a ball or when writing at a desk
- Difficulty with, or reduced interest in, physical activities (“couch potato”)

A child with DCD often presents in your office with parental concerns about **low tone** (“he seems floppy”, “she never sits up straight”), **fatigue** (“he’s really tired at the end of the school day”), **school avoidance** (“she cries every morning when I put her on the bus”), **dependence** (“she always wants me to dress her”) or **motor coordination problems** (“he’s always tripping”, “she seems to have bruises all the time”, “it took forever to teach him how to ride a tricycle”) or **academic difficulties** (“his teacher says he never finishes his work on time”; “she should be printing by now”). If you suspect that a child is demonstrating the characteristics of DCD, you might want to ask parents about other developmental concerns (fine motor, gross motor, self-care, leisure). It will be important to inquire whether these difficulties have been noticed at home, at school, and in the community. Is your child having trouble with buttons, using eating utensils or tying shoelaces? Are fine motor activities such as printing and cutting difficult for your child? Does your child have to exert a lot of effort to complete motor tasks? Does your child participate in organized sports or other physical activity?

*A terrific question to ask parents that captures many of these concepts is:*

**“Is there anything that you have tried to teach your child to do that has taken longer than you think it should?”**

If your observations and parental report are consistent with the characteristics outlined above, you will want to rule out other conditions that might explain poor motor coordination. If none are present, consider referring the child to an occupational therapist and/or a physiotherapist. DCD often coexists with other developmental conditions (expressive and receptive language difficulties, attention deficit disorder). You should be investigating these further and making appropriate referrals, as needed, to other service providers such as a speech/language pathologist or psychologist. You can also provide parents with educational materials that will help them understand their child’s needs and empower them to share this information with others.

**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](http://dcd.canchild.ca)**

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