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# Recognizing and Referring Children with Developmental Coordination Disorder

## The role of the Physiotherapist

Physiotherapists assess young children with motor difficulties and/or delays by observing movement skills and asking critical key questions about their motor abilities and development. They do so in order to differentiate between patterns of motor behaviour that are characteristic of different conditions, a differentiation that guides the therapist in selecting a course of intervention.

Recently, increased attention is being given to the motor difficulties of children who used to be labeled “clumsy” or “physically awkward” but who would now be recognized as having Developmental Coordination Disorder (DCD). In the past, these children received little attention from physiotherapists because many believed that they would overcome their difficulties with time. It is now being realized that their poor motor coordination significantly impacts their physical, social and emotional well-being.

It is important for physiotherapists to differentiate the motor behaviour of children with DCD from other movement disorders in order to enable early identification and appropriate intervention. Children referred in the early years with motor difficulties or delays may have disorders such as cerebral palsy, muscular dystrophy, global developmental delay 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? Observed alterations in muscle tone might be suggestive of a condition such as cerebral palsy. Are the delays global in nature, a situation in which global developmental delay might be suspected? With a preschool or school-aged child, questions might centre around the history of the poor coordination. Have the difficulties been present from an early age? Are the motor concerns appearing to worsen over time? Has there been a loss of previously acquired skills? If so, this might be suggestive of a condition like muscular dystrophy.

If a child does not show the above signs but demonstrates uncoordinated movements and motor abilities below those expected for their age, they may have Developmental Coordination Disorder (DCD). This flyer will help you recognize children at risk for DCD and recognize the need to intervene and to refer the child to other service providers for further evaluation.



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

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

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

### For more information:

Missiuna, C., Rivard, L., & Bartlett, D. (2006). Exploring assessment tools and the target of intervention for children with developmental coordination disorder. *Physical & Occupational Therapy in Pediatrics, 26*(1/2), 71-89. doi:10.1080/J006v26n01\_0.

Missiuna, C., Rivard, L. & Bartlett, D. (2003). Early identification and risk management of children with developmental coordination disorder. *Pediatric Physical Therapy, 15*, 32-38.

## Characteristic Features of Children with Developmental Coordination Disorder:

- 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
- Difficulty with, or reduced interest in, physical activities

If you suspect that a child is demonstrating the characteristics of DCD, you might want to ask parents about other developmental concerns (fine motor, self-care, leisure). It will be important to inquire whether or not there are difficulties at home or at school. 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 child with DCD is usually seen by a physiotherapist due to low tone or gross motor concerns: you will want to conduct further assessment and might provide intervention for these difficulties. It is probable, however, that a child with DCD will also experience delays in fine motor and/or self-care skill acquisition that may not have been identified. If your observations and parental report are consistent with the characteristics outlined above, you might consider making a referral to an occupational therapist.

You should also consider encouraging the family to have the child seen by their physician. It is important that a medical practitioner rule out other conditions that might explain the poor motor coordination. Also, since DCD often coexists with other developmental conditions (expressive and receptive language difficulties, attention deficit disorder), the primary care physician should be investigating these further and making appropriate referrals to other service providers.

**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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