



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 cognitive, speech, language, gross motor and fine motor, social and self-care.

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) (APA, 2000). Many physicians used to believe that these children were slow to develop or low in athletic ability and would overcome their difficulties with time. We now know that motor in-coordination significantly impacts on physical fitness, social and emotional well-being.

It is important to learn to differentiate the motor behaviour 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 rather than just a 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 in-coordination. Have the difficulties been present from an early age or have they onset recently? 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 paper 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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This flyer for parents can be photocopied to explain the need for referral.



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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 a “marked impairment in the development of motor coordination... only if this impairment 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:

- A) Performance in daily activities that require motor coordination is substantially below that expected, given the person’s chronological age and measured intelligence. This may be manifested by marked delays in achieving motor milestones (e.g., walking, crawling, sitting), dropping things, “clumsiness”, poor performance in sports, or poor handwriting.
- B) The disturbance in Criterion A **significantly interferes with academic achievement or activities of daily living.**
- C) The disturbance is not due to a general medical condition (e.g., cerebral palsy, hemiplegia, or muscular dystrophy) and does not meet criteria for Pervasive Developmental Disorder.
- D) If mental retardation is present, motor difficulties are in excess of those usually associated with it.

Note: Motor milestones are often not delayed; the delay is usually in the acquisition of motor skills. Criteria C and D require 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.*

(APA Diagnostic and Statistical Manual, 2000; pp. 56-58)

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

**Good references for physicians regarding differential diagnosis include:*

Fox, M., & Lent, B. (1996). Clumsy children: Primer on developmental coordination disorder. *Canadian Family Physician, 42*, 1965-1971.

Gibbs, J., Appleton, J., Appleton, R. (2007). Dyspraxia or developmental coordination disorder? Unravelling the enigma. *Archives of Disease in Childhood, 92*, 534-539.

Hamilton, S. (2002). Evaluation of clumsiness in children. *American Family Physician, 66*, 1435-1440.

Characteristic Features of Children with DCD:

- Clumsiness and/or incoordination
- Handwriting / printing / copying difficulties
- Difficulty finishing academic tasks on time
- Requires 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** (“he 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 that captures many of these concepts is:

“Is there anything that you have tried to teach your child to do that has taken longer to learn 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 motor in-coordination. If none are present, consider referring the child to an occupational therapist and/or a physical therapist. 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 information about DCD, visit the *CanChild* website

www.canchild.ca

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

Associate Professor and Director

School of Rehabilitation Science and *CanChild*

McMaster University, Hamilton, Ontario



canchild@mcmaster.ca

905-525-9140 ext 27850



When Your Child is Having Motor Difficulties.....

Children can have motor difficulties in the early years for a number of reasons. Some children have trouble coordinating their movements in order to run, skip or jump. They might experience frustration learning to ride a tricycle, do up buttons or zippers, hold a pencil or catch a ball. Others might have difficulty managing stairs and might avoid playground equipment or participating in childhood motor games.

You may have some concerns about your child's ability to participate in motor activities. Your child has now been seen by his/her family physician or pediatrician. Your doctor thinks that there is a reason for your child to also be seen by an occupational therapist. Occupational therapists work with children who have coordination problems or organizational difficulties that can impact on their ability to perform well at school, at home and on the playground. Some children who have these types of problems have developmental coordination disorder and may also benefit from working with an occupational therapist on self-care or academic tasks.

What can an occupational therapist do?

An occupational therapist will:

- Provide a thorough assessment of your child's developmental skills
- Determine how different aspects of your child's daily life are affected
- Teach your child ways of thinking his/her way through learning new tasks
- Provide adapted equipment and materials to improve task performance
- Help you and your child to set appropriate expectations
- Modify environmental factors to maximize participation
- Guide you in your selection of leisure activities for success
- Help you, your child and others to maximize his/her strengths

How do I find an occupational therapist in my area?

Your child's doctor can make a referral to an occupational therapist.

Your doctor will be able to provide information that will assist the occupational therapist in determining the possible reasons for your child's motor difficulties. It might also be a good idea for you to let your child's teacher know that you have been referred as your child's teacher has a different perspective that can be very helpful. You can find more information about developmental coordination disorder at: