

What is Developmental Coordination Disorder (DCD)?

- A developmental disorder present from birth but often is not recognized until the child reaches school age.
- Motor disorder of unknown cause that significantly interferes with a child's ability to perform and learn motor skills.
- Affects 5-6% of school-age children.

More than a motor impairment compared to typically-developing children, children with DCD:

- experience academic and behavioral difficulties
- report lower perceived competence in physical, cognitive, and social activities
- have higher levels of anxiety, depression, and loneliness
- experience greater social rejection, teasing, and bullying
- have lower self-esteem, quality of life, and life satisfaction

DSM-5 Criteria for DCD

- A. Motor skills are substantially below that expected given the individual's chronological age and opportunity for skill learning and use.
- B. Motor skills deficit significantly and persistently interferes with ADL and impacts school productivity, prevocational/vocational activities, leisure, and/or play.
- C. Onset of symptoms is in the early developmental period.
- D. Motor skills deficits are not better explained by intellectual disability, visual impairment, or neurological conditioning affecting movement.

Other physical concerns

- Tend to avoid physical activity and lead a more sedentary lifestyle than peers without DCD.
- Increased risk for obesity and cardiovascular disease.
- Motor difficulties tend to persist into adolescence and adulthood.

Co-occurring conditions associated with DCD

- Up to 50% of children with DCD may meet the diagnostic criteria for ADHD.
- DCD frequently co-occurs with learning disabilities.
- Specific language impairment has also been associated.
- Since the DSM-5, children with ASD may have a co-occurring DCD diagnosis; co-occurrence is unknown but > 50% of children with ASD may have motor difficulties.

DCD more common in preterm children

- Children born preterm (< 32 weeks gestational age) are 6-8x more likely to develop DCD compared to full-term peers.
- Up to 50% of infants born preterm may meet the diagnostic criteria for DCD.

- Perinatal and neonatal predictors of DCD included: Male sex, Low birth weight, postnatal steroid exposure.

DCD is usually NOT diagnosed if...

- History of recent head injury or trauma
- Evidence of deterioration
- Increased or fluctuating muscle tone
- History of headaches, blurred vision
- Asymmetry of tone or strength
- Musculoskeletal abnormalities
- Gowers' sign, medical sign that indicates weakness of the lower limb muscles

Information adapted from Jill Zwicker's presentation at Pediatric Symposium in Vancouver 2017

DCD CLINIC AT SUNNYHILL HEALTH CENTER FOR CHILDREN

Why was the DCD Clinic established?

- Despite being one of the most common disorders in childhood, DCD is often under-recognized and under-diagnosed.
- Many physicians and pediatricians are unaware of the disorder and/or how to diagnose it.
- To be able to address this gap, Sunnyhill established the first research integrated DCD diagnostic clinic in Canada.
- To provide assessment by a developmental pediatrician and an occupational therapist for consideration of a diagnosis of DCD in children 4-12 years old.
- To provide education, educational materials, and recommendations to the child with DCD and his/her family.
- To establish a research database and collect additional data from families/children who consent/assent including: IQ, Attention, Psychosocial implications, Participation, Quality of life.
- To serve as a source of recruitment for current and future studies of children with DCD.

Who Do They See?

Inclusion Criteria:

- Children ages 4-12 years for clinical assessment.
- Children (4-18 years) with a DCD diagnosis can also be referred to the clinic for research purposes.
- History of motor difficulties that affect activities of daily living and/or academic achievement.
- Referral from a family physician or pediatrician.

Exclusion Criteria:

- History of conditions that may explain motor difficulties (e.g., cerebral palsy, muscular dystrophy, genetic syndromes)
- History of moderate to severe intellectual disability

How Do They Do It?

- Interdisciplinary clinical team – developmental pediatrician and occupational therapist.
- Research associate to obtain consent/assent and facilitate research.
 - Two families seen simultaneously.
- Brief team meetings throughout the morning to facilitate assessment process and final diagnosis.
- Provide in-clinic education about DCD.
- Parent on-line workshop.
- Handouts.
- Provide recommendations for helping the child at home, at school, and in the community.

Online Resource for DCD:

Academic and physical challenges can make school days hard both inside and outside of the classroom. Did you know that there is one student in every school class who struggles with coordination difficulties? This can mean that handwriting, tying laces, using science apparatus or playing catch can be difficult, even in high school. We used to think that kids with developmental coordination disorder - or DCD - grew out of these challenges. But now we know that they don't. Kids with DCD face coordination challenges through childhood, adolescence and adulthood: DCD does not go away.



We can help kids with DCD by teaching them a strategy approach that allows them to MATCH their activities and abilities to promote success. Watch this latest video to understand the role that MATCH can play to make returning to school easier for everyone, especially for those with DCD.

To learn more about DCD and access module, flyers and resources, see

<https://canchild.ca/en/diagnoses/developmental-coordination-disorder>

Strategies to Cope with DCD

The most important thing to help a child reach full potential is to make sure that the task and the learning environment are right for the child. The following principles will help you “M.A.T.C.H.” the activity to the child.

MODIFY THE TASK

This involves changing aspects of a task or a group of tasks that are too difficult for the child to perform. The important thing about modifying a task is that the children can still experience success if they make a genuine effort to participate in the activity.

ALTER YOUR EXPECTATIONS

Consider what the ultimate goal of an activity is and then think about where you can be flexible. Allowing extra time or the use of alternate methods to complete a task can make the difference between a lesson learned and an experience of failure for a child with DCD.

TEACH STRATEGIES

Children with DCD have the full capacity to learn with their peers, but may require a slightly different teaching approach. Investigate alternate teaching strategies designed for children with special needs, such as modelling, verbal cueing, and hand over hand techniques.

CHANGE THE ENVIRONMENT

Pay attention to what is going on around a child when he/she is experiencing success or difficulty (i.e. noise, level of activity, visual distractions). Minimize the environmental factors that make performance difficult for the child.

Understanding the nature of DCD will help you to problem solve and provide all of your students with rich learning experiences. By encouraging a non-competitive classroom environment that fosters individual achievement, you can help children with DCD maintain both their self-esteem and their motivation to participate in physical activities. If children feel supported and understood, they are more likely to attempt new activities and to persevere until they achieve success.

Teaching Tips

When observing children with motor difficulties in physical education class, watch how they perform, not just the end result. Observe what strategies they use to overcome their difficulties. Note how these children interact with peers and monitor self-esteem.

The following guidelines may be helpful:

- Ask questions - determine if the child understands the task and prompt them to think about specific aspects of the task and their body position (“Is your body in ready position?” “Where do your arms need to be?” “What happens when you bounce the ball harder?”).
- Describe movements verbally – use language to guide the movements that are required (“arms up”, “elbows straight”, “feet planted apart” etc.).
- Analyze and adapt tasks – change the equipment, adapt the task (e.g., roll a larger ball or roll it more slowly).
- Little and often – try short, regular periods of practice each day rather than longer periods once or twice a week. Make these practices part of the child’s routine.
- Vary the practice – use different types of balls to catch, coming from different types of throws, from varying distances and directions and draw attention to the differences.
- Expert “scaffolding” – support the learning of tasks by making tasks simpler and then building them back up; gradually add complexity to tasks.
- Move to learn and learn to move – encourage the learning of motor skills necessary for lifelong fitness.

REFERENCES:

http://elearning.canchild.ca/dcd_workshop/match.html

<https://www.canchild.ca/en/diagnoses/developmental-coordination-disorder>

<https://www.canchild.ca/en/resources/123-m-a-t-c-h-flyers-a-resource-for-educators>