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Developmental Coordination Disorder (DCD) in Children/Youth: Information for Parents and Caregivers

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Summary: Developmental coordination disorder (DCD) (also known as dyspraxia) is a condition where people have significant problems with their coordination to the point where it gets in the way of day-to-day life. They may have problems with being clumsy, poorly coordinated which leads to dropping things or bumping into things. There may be gross motor problems that make it difficult to learn to ride a bike or do sports. There may be fine motor coordination problems such as poor printing and handwriting that make school difficult. The good news is that there are many things that can be done to help. Professionals that can help include occupational therapists (OT) or physiotherapists (PT).

Max's Story

Max has always been clumsy. But it seems that as he gets older, it's not something he is growing out of, and starting to really cause noticeable problems. He is clumsy and spills things at home all the time, leading family members to get upset at him. He is always walking or falling on something leading to frequent bumps and bruises. At school, he struggles to learn how to write. He struggles with gym class, and at recess, wishes he could play with the other kids but he is so clumsy that no one wants to play with him.

Any of the Following?

- Does your child seem excessively clumsy, to the point that it causes problems at home, school or work?
- Does your child have problems with learning how to ride a tricycle, bicycle, catching a ball, doing jumping jacks?
- Does your child have problems with writing or printing?

If so, then your child may have developmental coordination disorder (DCD)...

What is Developmental Coordination Disorder (DCD)?

Developmental coordination disorder (DCD), also known as dyspraxia, occurs when a delay in the development of motor skills, or difficulty coordinating movements, results in a child being unable to perform everyday tasks. Good coordination is an essential skill for all day-to-day activities such as dressing in the morning, writing/typing during the day, and playing sports. Naturally, some people are more coordinated than others. On the other end, some children and youth have such challenges with coordination that it causes problems with day-to-day life.

How Common is it?

DCD affects 5-6% of school-aged children and tends to occur more frequently in boys.
When DCD is identified, it is usually not identified until a child is at least 8 years old.

What are the Features of DCD?

Troubles with Physical Activities
The child with DCD may:

- Have troubles with whole-body movements (e.g. gross motor skills), and as a result, end up bumping into or knocking into things
    - Be delayed in riding a tricycle/bicycle, catching a ball, jumping rope
- Have troubles with fine motor movements (i.e. using his/her hands and fingers), and as a result, may have troubles with spilling things
    - Be delayed in doing up buttons, tying shoelaces
    - Have difficulty with printing or handwriting. This skill involves continually interpreting feedback about the movements of the hand while planning new movements, and is a very difficult task for most children with DCD.
- Have difficulty learning new motor skills.
- Have more difficulty with activities that require constant changes in his/her body position or when he/she must adapt to changes in the environment (e.g., baseball, tennis).
- Have difficulty with activities that require the coordinated use of both sides of the body (e.g., jumping jacks, cutting with scissors, stride jumps, swinging a bat, or handling a hockey stick).
- Have problems with activities that require balance (e.g. stair climbing, standing while dressing).
- Have significant strengths in other areas (e.g. intellectual or language skills).

Emotional and Behavioural Challenges
Because motor skills are so frustrating and challenging, it is understandable that many children/youth with DCD may develop various reactions and emotional responses when faced with having to do a motor skill:

- Avoidance
    - The child may show a lack of interest in or avoid particular activities, especially those requiring a physical response. For a child with DCD, performing motor skills requires significant effort. Fatigue and repeated failure may cause the child to avoid participating in motor tasks.
    - The child may avoid socializing with peers, particularly on the playground. Some children will seek out younger children to play with while others will play on their own or follow the educator or playground supervisor. This may be due to decreased self-confidence or avoidance of physical activities.
    - The child may appear anxious in social situations, because the child may actively avoid tasks that require motor skills, out of fear of being embarrassed
- Frustration
    - The child may demonstrate a low frustration tolerance, decreased self-esteem, and a lack of motivation due to difficulties coping with activities that are required in all aspects of his/her life.
    - The child may seem dissatisfied with his/her performance (e.g., erases written work, complains of performance in motor activities, shows frustration with work product).
    - The child may appear hyperactive because due to troubles stabilizing his/her body, the child may appear restless
- Resistance to changes
    - The child may be resistant to changes in his/her routine or his/her environment. If the child has to expend a lot of effort to plan a task, then even a small change in how it is to be performed may present a significant problem for the child.

Other Common Characteristics

- The child may have difficulty balancing the need for speed with the need for accuracy. For example,

handwriting may be very neat but extremely slow.
- The child may have difficulty with academic subjects such as mathematics, spelling, or written language which require handwriting to be accurate and organized on the page.
- The child may have difficulty with activities of daily living (e.g., dressing, using a knife and fork, brushing teeth, doing up zippers, organizing a backpack).
- The child may have difficulty completing work within an expected time frame. Since tasks require much more effort, children may be more willing to be distracted and may become frustrated with a task that should be straightforward.
- The child may have general difficulties organizing his/her desk, locker, homework, or even the space on a page.

Why is DCD Important to Address?

Because good coordination is required for so many everyday activities, having poor coordination can contribute to poor academics, poor self-esteem, and poor participation in physical activity.
If not dealt with appropriately, as these youth become teenagers, they may continue to have significant problems functioning.

What Does DCD Look Like in Different Ages?

Age	Problems
When the child is young	Coordination difficulties are the most evident
By school age	Coordination difficulties become more evident as problems with self-care and academic activities.
By the end of elementary school	Ongoing problems with coordination, in addition to social isolation, poor self-image and victimization are evident.
In teenagers	Ongoing problems with coordination, in addition to problems with physical health (e.g. obesity and reduced physical fitness) and/or mental health problems (anxiety and depression)
Adults	Adults with DCD are at a higher risk of adopting a sedentary lifestyle, leading to a greater risk of other medical problems.

Do Children Grow out of DCD?

It is important to seek help for DCD because:

- Children do not “grow out of” having DCD. While children do learn to perform certain motor tasks well, they will continue to have difficulty with new, age-appropriate tasks.
- Children with DCD are at higher risk of having problems with their academics, behaviours and mental health (with low self-esteem, depression and anxiety), as well as an increased risk of becoming overweight.

What Other Conditions Does It Occur With?

DCD can exist on its own or it may be present in a child who also has learning disabilities, speech/language difficulties, and/or attention deficit disorder.

Where to Find Professional Help?

Do you notice your child is having significant problems with coordination?
If so, then

- Have your child seen by a medical doctor, such as a primary care provider or pediatrician. The doctor will make sure that 1) that the movement problems are not due to any other known physical, neurological, or behavioural conditions, and 2) see if other conditions are present. They can then refer the child to a health service provider to services in your area that may be able to help, such as occupational therapy (OT) or physiotherapy (PT). The doctor may be able to make the diagnosis of DCD on their own, or by working with the OT or PT.
- Speak to the school. If your child is having problems with coordination that are affecting school function (such as problems with printing, writing or coordination in gym class), then the school board may be able to have your child seen by an occupational therapist (OT) who can make recommendations.
- Consider seeing an occupational therapist (OT) or physiotherapist (PT) in private practice. If you are lucky, you may be able to find an OT that works in a publicly funded agency, e.g. a local children's hospital. However, in most cases, parents have to pay out of pocket to see an OT or PT. If you have an extended health plan, it might cover some of these costs.

Self-Help: What Parents/Caregivers Can Do

At home

- Recognize and reinforce the child's strengths. Many children with DCD demonstrate strong abilities in other areas – they may have advanced reading skills, a creative imagination, sensitivity to the needs of others, and/or strong oral communication skills.

- Encourage the child to participate in the day-to-day, practical household activities that will help improve their ability to plan, organize and carry out motor tasks. Examples of daily chores include:
    - Setting the table.
    - Preparing meals with an adult;
    - Organizing their backpack for school.

- Use declarative language (statements, observations to promote thinking) as opposed to imperative language (commands).
    - Instead of just telling them what to do, use gentle comments/statements to help promote your child's thinking.
    - Giving commands can be difficult for some kids, as they may feel their autonomy is being threatened, and they may even go into a 'fight/flight' response.
    - Instead of "Do you know what to do first?", consider saying "I wonder if you know what to do first."
    - The advantage of using declarative language is that it also helps build the child's thinking skills.
- Is your child getting frustrated with the activity or task?
    - With mild frustration, give help and direction.
    - With severe frustration, it might be best to just take a break.
    - After your child is calmed down, problem-solve and plan for the next time.
- Encourage non-electronic toys.
    - With a younger child, encourage non-electronic toys, e.g. classic, retro toys such as wooden building blocks or other wooden toys.
    - With older children, you can encourage creativity with playdough, clay, drawing, knitting, sewing.

- Encourage learning a musical instrument such as the piano.

Games / sports

- Encourage the child to participate in games and sports that are interesting to him/her and which provide practice in, and exposure to, motor activities.

- Consider lifestyle sports such as swimming, skating, cycling, and skiing to maintain or improve strength and overall endurance.

- Expose your child to different physical activities for fun and participation, with an emphasis on health and

fitness (as opposed to doing sports for competition). After all, most kids are not going to be Olympic or professional athletes -- the goal is to be active and hopefully have fun.

- Introduce the child to new sports activities (e.g. soccer, baseball) or a new playground with the child and an adult, before he/she is required to manage the activity in a group of peers. Try to review any rules and routines that are associated with the activity (e.g., baseball rules, soccer plays) at a time when the child is not concentrating on the motor aspects. Ask the child simple questions to ensure comprehension (e.g., "What do you do when you hit the ball?").
- Private lessons may be helpful at certain points in time to teach the child-specific skills, e.g. private lessons to learn how to bike; private lessons for skating, swimming, etc.
- Let coaches, instructors, babysitters, child care providers understand the child's strengths and challenges so they can support and encourage them to be successful.
- Accept that your child may prefer individual sports (e.g. swimming, running, bicycling, skiing) rather than team sports (e.g. soccer, hockey, etc.). If you do try team sports like soccer or hockey, consider giving your child extra opportunities to practice those skills. Martial arts is an interesting compromise, as it allows people to work at their own pace, yet still being in a group setting.
- Encourage the child to wear clothing to school that is easy to get on and off. For example, sweat pants, sweatshirts, t-shirts, leggings, sweaters, and Velcro shoes. When possible, use Velcro closures instead of buttons, snaps or shoelaces. Teach the child how to manage difficult fasteners when you have more time and patience (e.g., on the weekend, or over the summer) rather than when you are pressured to get out the door.
- Ensure safety through the use of protective gear (wrist guards, helmets) with physical activities.
- Encourage interaction with peers through non-competitive, non-physical activities. Examples include Scouts, Cubs, Girl Guides, 4H, music, drama.

What Can Be Done at School? School Accommodations and Modifications for DCD

Work together with educators to ensure they understand your child's specific needs. Meet with the educator near the beginning of the school year to discuss your child's specific difficulties and to make suggestions about strategies that have worked well.
Classroom accommodations and modifications are recommended for DCD such as the following:

- Understand that the child may struggle with fine and gross motor skills. As a result, the child will need the curriculum to be flexible around difficulties with motor skills.
- Ensure that the child is positioned properly for deskwork. Make sure that the child's feet are flat on the floor, and that the desk is at an appropriate height with the shoulders relaxed and the forearms comfortably supported on the desk.
- Set realistic short-term goals. This will ensure that both the child and educator continue to be motivated.
- Provide the child with extra time to complete fine motor activities such as math, printing, writing a story, practical science tasks, and artwork. If speed is necessary, be willing to accept a less accurate product.
- When copying is not the emphasis, provide the child with prepared worksheets that will allow him/her to focus on the task. For example, provide children with prepared math sheets, pages with questions already printed, or 'fill in the blank' for reading comprehension questions. For study purposes, photocopy notes written by another child.
- Allow the early use of keyboards to make it easier for the child to express himself. Provide teaching (if required) about how to type, and do not assume that the child will just learn how to type on his/her own.
- Teach children specific handwriting strategies that encourage them to print or write letters in a consistent manner. Use thin magic markers or pencil grips if they seem to help the child improve pencil grasp or to reduce pencil pressure on the page.
- Use paper that matches the child's handwriting difficulties.
  For example:
    - widely spaced lines for a child who writes with very large lettering;

    - raised, lined paper for a child who has trouble writing within the lines;
    - graph paper for a child whose writing is too large or improperly spaced;
    - graph paper with large squares for a child who has trouble keeping numbers aligned in mathematics.
- Focus on the purpose of the lesson, as opposed to handwriting. If a creative story is the goal, then accept messy handwriting, uneven spacing and multiple erasures. If the goal is to have the child learn to set up a math problem correctly, then allow time to do it even if the math problem does not get solved.
- Consider using a variety of presentation methods when asking the child to demonstrate comprehension of a subject. For example, encourage children to present a report orally, use drawings to illustrate their thoughts, type a story or report on the computer, or record a story or exam on a tape recorder.
- Consider allowing the child to use a keyboard for writing the draft and final copies of reports, stories and other assignments. If it is important to see the “non-edited” product, ask the child to submit both the draft and final versions.
- Provide additional time, and/or computer access, for tests and exams that require a lot of written output.

In Physical Education:

- Break down the physical activity into smaller parts while keeping each part meaningful and achievable.
- Choose activities that will ensure success for the child at least 50% of the time and reward effort, not skill.
- Incorporate activities that require a coordinated response from arms and/or legs (e.g., skipping, bouncing and catching a large ball).
- Encourage children to develop skills using their hands in a dominant/assistant fashion (e.g., using a baseball bat or a hockey stick).
- Keep the environment as predictable as possible when teaching a new skill (e.g., place a ball on a T-ball stand). Introduce changes gradually after each part of the skill has been mastered.
- Make participation, not competition, the major goals. With fitness and skill-building activities, encourage children to compete with themselves, not others.
- Allow the child to take on a leadership role in physical education activities (e.g., captain of the team, umpire) to encourage them to develop organizational or managerial skills.
- Modify equipment to decrease the risk of injury to children who are learning a new skill. For example, Nerf balls in graduated sizes can be used to develop catching and throwing skills.
- When possible, provide hand-over-hand guidance to help the child get the feel of the movement - for example, by asking the child to help the educator demonstrate a new skill to the class. Also, talk out loud when teaching a new skill, describing each step clearly.
- Focus on understanding the purpose and the rules of various sports or physical activities. When a child understands clearly what he/she needs to do, it is easier to plan the movement.
- Give positive, encouraging feedback. If providing instruction, describe the movement changes specifically (e.g., “you need to lift your arms higher”).

About this Document

Written by Dr. Cheryl Missiuna, along with members of the CHEO Mental Health Information Committee. Special thanks from Dr. Missiuna to adapt the original handout, “Children with Developmental Coordination Disorder: At home, at school and in the community.”

About this Document

Information in this pamphlet is offered ‘as is' and is meant only to provide general information that supplements, but does not replace the information from your health provider. Always contact a qualified health professional for further information in your specific situation or circumstance.

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