

Early Identification: Are Toddlers with Speech/Language Impairments at Increased Risk for Developmental Coordination Disorder?

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What is DCD?

Children with Developmental Coordination Disorder (DCD) have difficulty performing everyday motor tasks such as catching a ball, printing letters or their names, or playing on the playground with other children. Their motor skill level is below that of a typically developing child even though they have average intellectual ability and no other diagnosable neurological disorder (American Psychiatric Association, 2000). These children take longer to do tasks and experience many frustrations as they attempt ordinary activities such as dressing and feeding themselves. About 5-6% of school aged children are affected by DCD (APA, 2000).

What is speech/language impairment?

Some children with speech/language impairment show delays in their ability to communicate, which are not due to any sensory, intellectual or neurological disorder. Approximately 7-10% of preschool children in Canada have a specific speech and language disorder (Beitchman, Nair, Clegg, & Patel, 1986).

Why did we do this study?

Recent studies have documented that many school aged children with speech/language disorders also have coordination difficulties (Hill, 2001). Early identification of speech/language problems has been improved in Ontario with the advent of governmental policies supporting preschool initiatives. The observable speech/language problems of children are now being better identified when the children are still young. Identification of comorbid coordination problems, however, does not usually happen until school age. Research is needed to establish whether children who were identified at a very young age with speech/language difficulties are more likely to have DCD and whether their motor difficulties could be predicted when they were very young.

Who participated in this study?

Forty children who had speech/language delays as toddlers, and who had participated in a community-based therapy program called "Toddler Talk" three years earlier, joined this study. In Toddler Talk, 2-3 year old children participate in a parent-child group program for a 12-14 week period. The program is facilitated by a speech/language pathologist, who uses a family-centred philosophy to model for and support caregivers in how to provide effective speech/language stimulation to meet their child's needs. Child-specific goals are identified at the start of the program and parents are given assistance with how to target their child's goals and monitor their child's progress (First Words Preschool Speech and Language Program, 2006).

What was done?

- Children were tested as toddlers and identified with speech/language impairments and participated in the Toddler Talk program. Three years later, when the child was completing kindergarten, they were invited to participate in this study.
- Speech and language development was assessed by a speech/language pathologist.
- Motor skills development was assessed by an occupational therapist.
- General development was evaluated by the parent's responses to 300 questions on a child development questionnaire.

What was found?

Speech/Language Skills

- *Number who still had speech and/or language problems:* Twelve (30%) of the 40 children had significant speech/language difficulties; 28 (70%) of the children had no speech/language difficulties.
- *Types of Problems :* 4 of the 12 children had speech impairments, 2 had language impairments and 6 had both a speech and language impairment.

Motor skills

- *Number of children who had motor problems :* A total of 18 children (45%) displayed motor coordination difficulties, while 22 (55%) had no problems. Ten of the 18 children (25%) achieved scores that showed a significant level of motor impairment and 8 (20%) showed moderate levels of motor impairment.
- To be classified as having DCD, a child must also experience challenges with everyday living that cannot be explained by intellectual deficits. Parent reports of self-care skills were reviewed for the 18 children identified as having significant motor impairment, 12 of the 18 (66%) met all diagnostic criteria for DCD.

Speech and Motor Skills

- Nine of the 12 children (75%) who were identified as having persistent speech/language problems showed significant motor coordination difficulties.
- Parents recognized their children's motor difficulties as shown by the fact that their responses on a parent-report child development questionnaire matched the results from the motor skills assessment very closely.

What do the findings mean?

The idea behind this study was to examine whether children who were identified as toddlers with speech/language impairment were at greater risk for DCD than would be expected in the rest of the population.

- Nearly half (45%) of the 40 children who had speech/language delays as toddlers also had significant motor difficulties at kindergarten age and 12 of these children met diagnostic criteria for DCD. In the general population, only 5-6 % of children have DCD.
- A similar study that was conducted while we were doing this study found nearly the same proportions of children with speech/language and motor skills difficulties (Webster, Majnemer, Platt, & Shevell, 2005)
- Speech language pathologists should be aware that young children who have persistent speech/language problems are likely to be at greater risk for significant motor difficulties.
- Parents were able to identify these motor difficulties on a developmental questionnaire. Speech/language pathologists treating toddlers and preschool-aged children should ask parents to provide information about their children's motor abilities.

What is next?

- More studies are needed to determine which early developmental speech/ language profiles in toddlers may increase the likelihood of motor coordination problems at school age.
- More specific descriptions of toddlers' speech/language difficulties may help predict developmental pathways of longer term difficulties in both speech/language and motor skills.

Conclusions

By collecting screening information from parents, and making astute observations (Missiuna, Gaines, & Pollock, 2002) speech/language pathologists may be instrumental in the early identification of children at risk for coordination difficulties, and in making subsequent referrals to occupational or physical therapy.

Want to know more? Contact:

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To read more about this study . . .

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