



Developing Service Provision Models for Children with Developmental Coordination Disorder

What is Developmental Coordination Disorder?

Developmental Coordination Disorder (DCD) is a motor skill disorder that affects 5 to 6 % of school-aged children. These children lack the motor coordination necessary to perform tasks that are considered to be appropriate for their age, given normal intellectual ability and the absence of other neurological disorders (American Psychiatric Association, 2000). A child with DCD may demonstrate significant difficulty with self-care tasks (e.g., dressing, using utensils, managing transitions); academic tasks (e.g., printing, handwriting, copying, organizing seatwork, gym class); and/or leisure activities (e.g., sports, playground activities, social interactions).

Why did we do this research?

When children have difficulty performing everyday motor tasks, the problem can impact on their self-esteem, socialization, behaviour, academic performance and physical fitness (see Cantell & Kooistra, 2002). Early identification, assessment and intervention need to happen during the preschool years to help children with DCD develop pre-academic skills, facilitate transition into school and prevent the development of secondary problems. Consideration also needs to be given to service delivery models for school-aged children since little direct intervention is currently taking place.

What led us to look at children with DCD more closely?

In 2000, The Rotary Children's Centre decided to expand its services to be more inclusive of children with developmental disabilities, including children with DCD. A review of evidence-based practice was needed to develop procedures and materials that would promote awareness and enhance services for children with DCD. With funding from the Cloverleaf Foundation, the Centre dedicated resources to a project that would develop proposals for service delivery. *CanChild* Centre for Childhood Disability Research became a partner in this process.

What did we want to know?

Several key questions were asked:

- Could children with DCD be identified prior to school age?
- Were there tools available that could assist with early identification and assessment?
- What interventions were being used for children with DCD?
- Were they effective?

What information was gathered?

- Surveys were conducted with Rotary Children's Centre speech and language pathologists (SLP), occupational therapists (OT) and physical therapists (PT) to determine their current level of knowledge regarding DCD and the service delivery models most frequently used.
- A comprehensive literature review was conducted to enhance knowledge regarding the nature of DCD, the relationship between DCD and other conditions (e.g., attention deficit disorder, specific language impairment), current assessments used to identify children with DCD, and current interventions and their effectiveness.
- A student pilot study was conducted in collaboration with *CanChild* and the School of Rehabilitation Science at McMaster University. Students videotaped children participating in speech therapy sessions to see whether they could identify child behaviours and clinician helping behaviours that might assist in earlier identification of children with DCD.
- Researchers studying children with DCD and clinicians from other Ontario Association of Children's Rehabilitation Services (OACRS) centres were contacted to gather information regarding their early identification, assessment and intervention practices for children with DCD.

What was found?

- Service providers at the Rotary Children's Centre (SLP, OT, PT) identified the need for more education regarding how to recognize and provide service to children with DCD.
- The majority of the published literature focuses on school-aged children with DCD.
- Literature regarding traditional interventions indicates small or non-existent gains (e.g., Mandich, Polatajko, Macnab, and Miller, 2001)
- Contemporary interventions show some promise with school-aged children with DCD (Revie and Larkin, 1993; Miller, Polatajko, Missiuna, Mandich, Macnab & Malloy-Miller, 2001).
- The pilot study revealed that children with suspected motor difficulties were provided with more assistance (verbal and/or physical) by SLPs during therapy sessions. They also demonstrated particular behavioural characteristics that were seen more often than in typically developing children (Missiuna, Gaines & Pollock, 2002).
- Services provided at other OACRS centres are varied; many centres would like to facilitate earlier identification of children with DCD.
- Research is currently underway through other projects at *CanChild* to look at early identification of preschool children with DCD.
- Research is ongoing in other locations such as the University of Western Ontario examining the efficacy of cognitive interventions with young children with DCD.

What was developed?

- Service delivery models were developed which proposed tools for identification, assessment and intervention for preschool and school aged children with DCD.
- Service delivery models emphasized a more active intervention approach and included the potential for participation by parents and teachers.
- A research report was generated for the funding agency that summarizes the DCD literature and these models.
- The findings of this project were presented at the 2002 OACRS Conference (Rivard, Johal and Missiuna, 2002).

How is this information useful?

- Information gathered may assist speech language pathologists in the early identification and referral of children with suspected movement difficulties to occupational therapy and/or physiotherapy for further assessment.

- Parents and teachers may be able to recognize coordination difficulties and may seek out further information about their child's development.
- Occupational therapists and physical therapists will be more likely to accurately identify, assess and provide effective intervention for children with motor coordination difficulties.

What's next?

- Proposed service delivery models need to be evaluated for effectiveness.
- More research is needed regarding the early indicators of children with DCD and the provision of service to preschool children with coordination difficulties.

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Where can I get an information package regarding this project?

Please contact C. Seftel at (519) 886-8886, ext. 216. An administration cost will apply.

For further inquiries, please contact:

Herdip Johal, BHScOT, OTReg(Ont)
Rotary Children's Centre
250 Hespeler Road
Cambridge, Ontario N1R 3H3
(519) 621-7580 ext. 257
email: hjohal@rccw.on.ca



Institute for Applied Health Sciences, Room 408
McMaster University, 1400 Main St. W.
Hamilton, Ontario L8S 1C7
Tel: (905) 525-9140 ext. 27850; Fax: (905) 522-6095
Email: canchild@mcmaster.ca
www.fhs.mcmaster.ca/canchild