THE DEVELOPMENTAL COORDINATION DISORDER QUESTIONNAIRE 2007© (DCDQ'07)

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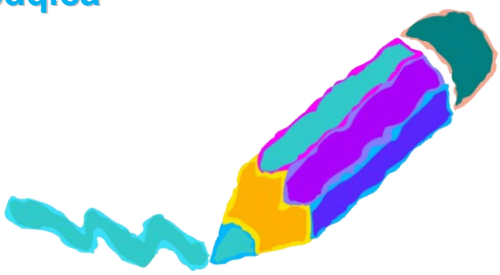

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COORDINATION QUESTIONNAIRE (REVISED 2007)

	Year	Mon	Day
Today's Date:			
Child's Birth:			
Child's Age:			

Name of Child: _____

Person completing Questionnaire: _____

Relationship to child: _____

Most of the motor skills that this questionnaire asks about are things that your child does with his or her hands, or when moving.
A child's coordination may improve each year as they grow and develop. For this reason, it will be easier for you to answer the questions if you think about other children that you know who *are the same age as your child*.
Please compare the degree of coordination your child has with other children of the same age when answering the questions.
Circle the one number that best describes your child. If you change your answer and want to circle another number, please circle the correct response twice.
If you are unclear about the meaning of a question, or about how you would answer a question to best describe your child, please call_____ at _____ for assistance.

	Not at all like your child	**A bit like your child**	**Moderately like your child**	**Quite a bit like your child**	**Extremely like your child**
	1	**2**	**3**	**4**	**5**

1. Your child *throws a ball* in a controlled and accurate fashion.

   1 2 3 4 5

2. Your child *catches* a small *ball* (e.g., tennis ball size) thrown from a distance of 6 to 8 feet (1.8 to 2.4 meters).

   1 2 3 4 5

3. Your child *hits* an approaching *ball* or *birdie* with a bat or racquet accurately.

   1 2 3 4 5

4. Your child *jumps* easily *over* obstacles found in garden or play environment.

   1 2 3 4 5

5. Your child *runs* as fast and in a *similar* way to other children of the same gender and age.

   1 2 3 4 5

6. If your child has a *plan* to do a motor *activity*, he/she can organize his/her body to follow the plan and effectively complete the task (e.g., building a cardboard or cushion "fort," moving on playground equipment, building a house or a structure with blocks, or using craft materials).

   1 2 3 4 5 **(OVER)**

	Not at all like your child 1	A bit like your child 2	Moderately like your child 3	Quite a bit like your child 4	Extremely like your child 5

7. Your child's printing or *writing* or drawing in class is *fast* enough to keep up with the rest of the children in the class.

1 2 3 4 5

8. Your child's printing or *writing* letters, numbers and words is *legible*, precise and accurate or, if your child is not yet printing, he or she *colors and draws* in a coordinated way and makes pictures that you can recognize.

1 2 3 4 5

9. Your child uses appropriate *effort* or tension when printing or writing or drawing (no excessive *pressure* or tightness of grasp on the pencil, writing is not too heavy or dark, or too light).

1 2 3 4 5

10. Your child *cuts* out pictures and *shapes* accurately and easily.

1 2 3 4 5

11. Your child is interested in and *likes* participating in *sports or active* games requiring good motor skills.

1 2 3 4 5

12. Your child learns *new motor tasks* (e.g., swimming, rollerblading) easily and does not require more practice or time than other children to achieve the same level of skill.

1 2 3 4 5

13. Your child is *quick and competent* in tidying up, putting on shoes, tying shoes, dressing, etc.

1 2 3 4 5

14. Your child would ***never*** be described as a *"bull in a china shop"* (that is, appears so clumsy that he or she might break fragile things in a small room).

1 2 3 4 5

15. Your child does ***not*** *fatigue easily* or appear to slouch and "fall out" of the chair if required to sit for long periods.

1 2 3 4 5

Thank you.

COORDINATION QUESTIONNAIRE (DCDQ'07): SCORE SHEET

Name: _____ **Date:** _____

Birth Date: _____ **Age:** _____

	Control During Movement	Fine Motor/ Handwriting	General Coordination
1. Throws ball			
2. Catches ball			
3. Hits ball/birdie			
4. Jumps over			
5. Runs			
6. Plans activity			
7. Writing fast			
8. Writing legibly			
9. Effort and pressure			
10. Cuts			
11. Likes sports			
12. Learning new skills			
13. Quick and competent			
14. "Bull in shop"			
15. Does not fatigue			

TOTAL _____ / 30 Control during Movement + _____ / 20 Fine Motor/ Handwriting + _____ / 25 General Coordination = _____ / 75 **TOTAL**

For Children Ages 5 years 0 months to 7 years 11 months
- 15-46 indication of DCD or suspect DCD
- 47-75 probably not DCD

For Children Ages 8 years 0 months to 9 years 11 months
- 15-55 indication of DCD or suspect DCD
- 56-75 probably not DCD

For Children Ages 10 years 0 months to 15 years
- 15-57 indication of DCD or suspect DCD
- 58-75 probably not DCD

Administration and Interpretation of the DCDQ'07

Overview

The *Developmental Coordination Questionnaire (DCDQ)* is a parent report measure developed to assist in the identification of Developmental Coordination Disorder (DCD) in children. Parents are asked to compare their child's motor performance to that of his/her peers using a 5 point Likert scale. It provides a standard method to measure a child's coordination in everyday, functional activities. As reported in 2000[1], the internal consistency of the DCDQ is high and the results from discriminant function analyses were appropriately strong for a screening tool.

Developmental Coordination Disorder is a DSM-IV[2] diagnosis. An indication of DCD based on the score of the DCDQ fulfills the requirement for Criterion B of this diagnosis. However, the questionnaire cannot be used alone for this purpose. Diagnosis must be made based on the results of several reports and tests. The questionnaire is labeled "The Coordination Questionnaire" to avoid parents becoming concerned that a medical condition is being diagnosed.

The *DCDQ`07* presented here is considered to have stronger psychometric properties than the 2000 version because it was developed with a population-based sample and has a larger age range[3] . The research took place between 2004 and 2006, involving 287 typically developing children, as well as 232 children who were reported to have motor coordination difficulties or who were more likely to have DCD. This revised version is appropriate for use with children ages 5 to 15.

The *DCDQ'07* consists of 15 items, which group into three distinct factors. The first factor contains a number of items related to motor control while the child was moving, or while an object was in motion, and is labelled "Control during Movement". The second factor contains "Fine Motor and Handwriting" items and the third factor relates to "General Coordination". These factor scores alone do not provide an indication of whether the child may have DCD. However, when the scores of each of the factors are examined relative to the scores of the other factors and are then compared with formal and informal assessment results, support for the identification of particular motor strengths and challenges a child is experiencing may be provided.

Prior to Administration

Before copying for clinical or research use, it is recommended that a name and phone number be written into the space on the first page so that parents can call if they have questions about the meaning of an item. This contact person should be knowledgeable about the condition of DCD, or know who to refer the question to if questions of this nature arise. The validity of the results will be increased if parents have the opportunity to clarify the intent of an item.

It is recommended that the 2 page questionnaire be copied double sided. The Score Sheet on the 4th page should be kept separate from the questionnaire itself. It is not recommended that parents be given the Score Sheet.

Respondents
This questionnaire was developed for parents, as parents know their children the best and can reliably report developmental problems. In addition, only the data from parent report was used to develop the scoring system. This DCDQ is therefore intended to be used with parents. However, some clinicians and researchers are experimenting with having both parents (or one parent and the child's primary teacher) complete it. Sometimes two or more respondents have completed the questionnaire separately, but in other situations they have conversed while completing one form. Subjectively, the results appear to be satisfactory but no one has yet studied this approach.

When the perspective of two adults gives a more complete or more accurate evaluation of the child's motor performance, this practice is likely to increase the validity of the score. However, it must be remembered that the scores were developed solely on parent response, so if the respondents have divergent opinions on the child's performance, or if the two forms have very different scores, the parent's score should be the one reported. The fact that others who know the child score the items differently can be noted, but it would be inappropriate to use the score of a teacher or coach alone (for example) in interpreting the results of the DCDQ.

Time to Complete
The DCDQ usually takes parents about 10-15 minutes to complete. As much as possible, arrange for the parent completing the questionnaire to do so in a non-distracting environment.

Administration - Written or Verbal
The DCDQ was designed to be self-administered by parents. In the reference sample of the development of the original DCDQ, however, parents were given the choice of completing a paper version of the questionnaire independently or of completing it over the phone while reading a paper copy along with the interviewer. In the study for the revised *DCDQ'07*, most parents completed a paper copy independently but a small proportion completed it with an occupational therapist following administration of the standardized motor tests. Either method of completion is acceptable.

Missing Items
When the questionnaire is completed or returned, review it for missed items or items where more than one item is circled. Ask the parent who completed it for clarification. **Note:** a total score can only be calculated if all items are scored. Missing one score will prevent you from obtaining a total score and having an indication of DCD or not.

If the parent does not know how to grade an item, or has not seen their child in a particular activity, ask them if there is anyone else who would know (e.g., the other parent, a caregiver, a teacher or a coach). You may inquire if the parent can make arrangements to ask that person, or if they will give you permission to do so.

Computing the Chronological Age

Enter the date that the DCDQ was completed and the child's Date of Birth (D.O.B.) on the first page of the questionnaire. Compute the chronological age by subtracting (first) the days, then the month and finally the year of birth. For example, if the questionnaire was completed on March 21, 2007, and the child was born on February 2, 2000, the child's chronological age would be calculated as shown in the first table:

	Yr	Mon	Day
DCDQ completion	2007	03	21
Child's D.O.B.	2000	02	02
Chronological age	7 yrs	1 mon	19 day

	Year	Month	Day
DCDQ completion	~~2007~~ 2006	14 ~~02~~ ~~03~~	51 ~~21~~
Child's D.O.B.	2000	06	28
Chronological age	6 years	8 month	23 days

If the day of the month in which the child was born is larger than the day of the month of questionnaire completion, add 30 days to the day of testing and subtract one month from the month of testing. Similarly, if necessary, a month of testing can be borrowed by adding 12 months to the month of testing and subtracting one year from the testing year, as shown above in the table on the right.

Computing a Total Score

Re-enter the numbers circled for all items of the questionnaire onto the Score Sheet (4th page).

Total each column to compute the 3 Factor Scores, and add all Factor Scores to compute a Total Score. *Double check your addition.*

Interpretation of Scores on the DCDQ

Using the child's chronological age at the time the questionnaire was completed, find the appropriate age grouping on the left column of the table below. Scan across that row to find the range of scores which the child's score falls within. This range will indicate whether the child's score is an "Indication of, or Suspect for, DCD", or "Probably not DCD".

Age Group	Indication of, or Suspect for, DCD	Probably not DCD
5 years *to* 7 years 11 months	**15 - 46**	**47 - 75**
8 years 0 months *to* 9 years 11 months	**15 - 55**	**56 - 75**
10 years 0 months *to* 15 years	**15 - 57**	**58 - 75**

Reporting of DCDQ`07 results

As outlined above, the DCDQ cannot be used alone to identify DCD. When using the questionnaire in a verbal or written report about a child, the terms ``indication of possible DCD``, ``suspect for DCD``, or ``probably not DCD`` should be used, as this test alone cannot be used to diagnose DCD.

Sensitivity and Specificity

It is sometimes desirable, especially when a diagnosis is not clear, to report the sensitivity and specificity of the test scores. The most accurate predictive values of the *DCDQ`07* are reported in the table below according to the different age ranges. If overall values for the questionnaire are required, however, the overall sensitivity is 84.6% and the specificity is 70.8%.

Age Group	Sensitivity and Specificity
5 years *to* 7 years 11 months	Sensitivity=75.0% Specificity=71.4%
8 years 0 months *to* 9 years 11 months	Sensitivity=88.6% Specificity=66.7%
10 years 0 months *to* 15 years	Sensitivity=88.5% Specificity=75.6%

The purpose of a screening instrument is to identify whether a child has a particular condition. Rarely is a screening tool alone 100% accurate in identifying all children with a condition while at the same time not falsely identifying any children who do not. When evaluating a screening tool such as the *DCDQ`07*, the degree of accuracy in identifying children with possible DCD (sensitivity) must be compared to the accuracy in correctly identifying children who do not have the condition (specificity). This "trade off" is common to all diagnostic tests because when one of these predictive values increases, the other decreases. By design, the *DCDQ'07* is most accurate in identifying children who may have DCD. It may identify children who do not have the condition, but further motor testing should reveal whether DCD is indeed present.

References

1. Wilson BN, Kaplan BJ, Crawford SG, Campbell A, Dewey D. (2000) Reliability and validity of a parent questionnaire on childhood motor skills. *Am J Occup Ther* **54(5):** 484-493.
2. American Psychiatric Association (2000) *DSM-IV-TR. Diagnostic and Statistical Manual of Mental Disorders*, 4th Ed. text revision. American Psychiatric Association, Washington, DC, USA.
3. Wilson, B.N., Crawford, S.G., Green, D., Roberts, G., Aylott, A., & Kaplan, B. (2009). Psychometric Properties of the Revised Developmental Coordination Disorder Questionnaire. *Physical & Occupational Therapy in Pediatrics, 29(2):182-202.*

