

## A Case Study of an Adult with Developmental Coordination Disorder: From Assessment to Intervention

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### **Abstract**

*Developmental Coordination Disorder (DCD) has been identified as impairment in the development of motor coordination, which impacts an individual's functioning in different areas including academic achievement and activities of daily living. Research in this area has focused on young population, with little research focusing on the difficulties encountered by adults with DCD in their daily functioning. Moreover, few researches have investigated the effectiveness of occupational therapy on adults diagnosed with DCD. This study aims to assess the difficulties an adult with DCD encounters as a result of the disorder as well to provide evidence on the effectiveness of a short-term occupational therapy intervention. Evidence was collected by completing pre and post-measures. The results show a significant difference in the adult's performance on standardized testing that assessed motor skills, visual perceptual skills, and visuomotor integration, as well as on self-reporting scales in relation to quality of life, life satisfaction, and psychological wellbeing.*

**Keywords:** motor coordination, adult, occupational therapy intervention

### **Introduction**

Developmental Coordination Disorder (DCD) is identified as a neurodevelopmental disorder in both the International Classification of Diseases-10 (ICD-10) (World Health Organization, 1992) and the Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5) (American Psychiatric Association, 2013). DCD is classified as a motor dysfunction that impacts one's functioning in different areas. It involves both fine and gross motor skills, and an individual may have had delays in early motor milestones. Having DCD and motor difficulties in children have been found to affect their ability to reach proficiency in different activities, e.g., handwriting, ball skills, dressing, personal hygiene, and eating skills (Summers, Larkin, & Dewey, 2008). Additionally, other studies have suggested that having DCD also impacts processing deficits (Piek, Dyck, Francis, & Conwell, 2007), and executive functioning difficulties (e.g. aspects of information processing, inhibition, working memory, and executive attention) (Wilson, Ruddock, Smits-Engelsman, Polatajko, & Blank, 2012).

Some studies looked into the prevalence of DCD, such as a population-based study on seven-year-olds in the UK that reported prevalence rates ranging from 1.8% to 4.9% (Kadesjö & Gillberg, 1999). Furthermore, a Swedish study reported higher prevalence ranging from 4.9% to 8.6% (Kirby, Williams, Thomas, & Hill, 2013). This variability in prevalence in different regions may be due to difference in the diagnostic assessment used. Concurrent diagnoses with DCD was found to include specific language impairment, attention-deficit/hyperactivity disorder, autism spectrum disorder, specific learning disorders, anxiety, and depression (Harris, Mickelson, & Zwicker, 2015).

Similar to children with other types of developmental disabilities, children with DCD do not “outgrow” their disorder, and there is an acknowledgment that DCD persists through the lifespan (American Psychiatric Association, 2013). There are few research studies that have investigated the symptoms and implications of having DCD in adolescents and young adults. On self-report, it was found that individuals with DCD reported difficulties in tasks related to playing team sports, parking a car, driving, dancing, handwriting, and writing quickly/neatly (Kirby, Edwards, & Sugden, 2011; Kirby, Edwards, Sugden, & Rosenblum, 2010; Cousins & Symth, 2003). Rosenblum, Aloni and Josman (2010) described some of the daily dysfunctions, which involve zipping, buttoning, building/fixing small pieces of objects, and organizing place/time.

The literature suggests that adults with DCD show difficulties not only in motor-related tasks but also in their executive functioning skills (EF). EF is an umbrella term that encompasses high-level cognitive functions such as planning, organization, reasoning, problem solving, conceptual thought, self-correction, judgment, and decision-making (Norris & Tate, 2010). Comparing individuals with DCD with a control group indicates that individuals with DCD report difficulties in executive functioning skills (Kirby, Sugden, Beveridge, & Edwards, 2008), which include one's ability to being organized, finding objects (Kirby, Edwards, Sugden, & Rosenblum, 2010), planning (Tal-Saban, Ornoy, & Parush, 2014), and managing money (Kirby, Edwards, & Sugden, 2011). However, it is worth pointing out that the literature did not present evidence around the neuropsychological evidence of executive and cognitive functions in adults with DCD.

Other studies have suggested that adults with DCD show physical difficulties and less physical strength, which includes higher rates of obesity, less flexibility, and poorer strength and general health (both mental and physical) (Blank et al., 2019). Moreover, various studies have suggested that the difficulties faced by individuals with DCD impact their quality of life and life satisfaction (Cantell, Smyth, & Ahonen, 2003; Tal-Saban, Ornoy, & Parush, 2014). Hill, Brown and Sorgardt (2011) found that adults with DCD report significantly lower life satisfaction and overall quality of life compared to a control group. Furthermore, studies have suggested that individuals who have DCD also suffer from difficulties in their emotional, behavioral, and social well-being (Cousins & Smyth, 2003; Mandich, Polatajko, & Rodger, 2003). They may develop low self-esteem, and psychiatric conditions as secondary consequences, such as depressive symptoms, and high levels of anxiety (Cousins & Smyth, 2003; Miyahara & Piek, 2006). These difficulties are not specific to the person or the environment but involve different contexts including educational setting, work, and home (Cermak, Gubbay, & Larkin, 2002; Miller, Missiuna, Macnab, Malloy-Miller, & Polatajko, 2001).

The above discussed studies are significant; however research on how DCD develops through adolescence and adulthood is minimal (Blank et al., 2019). In the DSM-5 it was suggested that 50-70% of children and adolescents diagnosed with DCD, continue to show motor difficulties well into adulthood (American Psychiatric Association, 2013). Cacola (2016) described DCD as a “hidden problem” and Gillberg (2017) stated that DCD is “currently among the most neglected problems” in adulthood. In support to this argument, Wilson, Neil, Kamps and Babcock (2013) conducted an online survey assessing the awareness of 1297 parents, teachers, and physicians of DCD. Their study shows that only 41% of pediatricians and 23% of general practitioners have knowledge of DCD. The physicians were from Canada, the United States, and the United Kingdom. Furthermore, only 23% of the pediatricians and 9% of the total physicians surveyed had diagnosed DCD. There was a consensus that more awareness needs to be promoted around DCD.

At present, there are no consistent diagnostic pathways, interventions and standardized assessments for adults with DCD (Thomas & Christopher, 2018). However, the need of a comprehensive assessment as well as interventions taking into account the motor and non-motor difficulties that are usually experienced by individuals with DCD have been acknowledged (Blank et al., 2019). Some of the recommendations for interventions for adults with DCD are 1:1 sessions to target: (1) learning specific motor skills for activities of daily living (ADL), education, or vocational activities (e.g., using tools, keyboarding, driving), (2) dealing with associated problems (e.g., psychological/psychiatric disorders), (3) addressing the impact of DCD on psychosocial skills and participation in various activities, and (4) minimizing the risk of longer-term problems (e.g., weight gain, physical inactivity) (Blank et al., 2019). Furthermore, current information on the effectiveness of intervention does not allow clear recommendations on intensity, duration, and timing because there is a lack of comparison studies. However, recommendations of some new effective studies suggest a mean duration of 10 weeks (range 2–18 weeks) (Blank et al., 2019).

This study addresses the gap in the literature on adults with DCD. The purposes of this study are to (1) characterize the difficulties faced by an adult with DCD using neuropsychological testing as well as self-reporting scales and (2) investigate the effectiveness of an occupational therapy intervention with an adult with DCD.

## Method

**Participant:** The participant was a 31 years 1 month 11 days old male. The participant signed a written consent form to take part in the study.

**Study Design:** This case study is a single-subject design. The baseline and pre-post measures were gathered by completing a neuropsychological assessment with the participant on 18.10.2018 at the age of 31 years 1 month 11 days. The assessment included both standardized testing and self-report rating scales. The treatment involved 20 sessions (around 10 weeks) of occupational therapy. On an average, two sessions were completed per week, and each session lasted for one hour. The post measures were collected by completing a neuropsychological assessment with the participant on 03.05.2019 at the age of 31 years 7 months 26 days. The same procedures for the pre-measures were completed.

**Instruments:** The instruments used for the neuropsychological assessment involved both standardized tests and self-report rating scales. The standardized testing assessed intellectual abilities, executive functioning skills (processing speed, working memory, inhibition, switching), visuospatial integration, visual perception skills, fine motor skills, and fine motor dexterity. The self-report rating scales were around the areas of DCD symptoms, quality of life, inattention, behavioral dysregulation, executive functioning skills, and psychiatric screening.

Standardized measures:

- (1) Reasoning skills and executive functioning skills:
  - Wechsler Adult Intelligence Scale, Fourth Edition (WAIS-IV)
  - Delis-Kaplan Executive Function System (DKEFS)
- (2) Visuospatial, visual perception and fine motor skills:
  - Rey Complex Figure Test and Recognition Trial (RCFT)
  - Grooved Pegboard (Grooved)

Self-report scales:

- (1) DCD:
  - The Adult Developmental Coordination Disorder/Dyspraxia Checklist (ADC)
- (2) Quality of life:
  - Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q)
- (3) Attention skills and behavioral dysregulation:
  - Adult Behavior Rating Scale (ABRS)
- (4) Executive functioning skills:
  - Behavioral Rating Inventory of Executive Function - Adult Version (BRIEF-A)
- (5) Psychiatric screening:
  - Psychiatric Diagnostic Screening Questionnaire (PDSQ)

**Procedure:** Pre and post measures were completed by the same educational psychologist who carried out a neuropsychological assessment with the participant over 2 outpatient visits lasting for 3 hours each. The testing was performed in English, which was the language of instruction when the participant was in school and university. The interpretations were performed by comparing the participant's scores to normative data (the U.S. samples).

**Analysis:** To determine any significance difference between pre and post-measures, the Reliable Change Index (RCI) was computed for the WAIS-IV and DKEFS. The purpose of the RCI is to evaluate whether a change of an individual score (e.g. between a patient's pre-intervention and post-intervention assessment) is statistically significantly greater than a difference that could have occurred due to random measurement error alone. For this study, we used RCI with a 90% confidence interval (CI).

### **Clinical Evaluation and Intervention**

**Clinical interview-** The participant was referred by his psychologist for a neuropsychological assessment to make relevant diagnoses and recommendations as he was facing difficulties in his attention skills.

A 1-hour clinical interview was completed with the participant to gather information about presenting concerns and background information. The participant reported some difficulties in attention skills that mainly centered around rushing in completing tasks, which he believed to be impacting the quality of his work. However, he did not report inattention difficulties in his daily life, e.g., he is not forgetful of appointments/daily routines/instructions and does not forget/lose his belongings. The participant reported difficulties in his motor skills that impact his daily functioning, e.g., tying his shoelaces/necktie, manual dexterity, pencil grip, handwriting skills (both quality and speed of writing), drawing (e.g., graphs and diagrams), and grooming activities (e.g., shaving and folding clothes). Furthermore, he reported difficulties in his visual perception skills, which includes differentiating between right and left, poor body balance, poor body coordination/integration of two sides of the body, and poor hand-eye coordination. These difficulties have made it challenging for him to take part in sports activities, dancing, aerobics, and crafts as well as play musical instruments, follow road directions, and estimate measurements (e.g., distance and weight). Socially, the participant shared that he has friends; however, he feels he has difficulties in his communication skills (e.g., he sometimes speaks more than needed in social situations, may interrupt others when speaking, and has difficulty in picking up non-verbal facial expressions). Psychologically, the participant shared that he has been following up with the psychologist for few years. He does not report to face major psychiatric difficulties, but he reported issues regarding self-esteem and self-criticism.

The participant's early developmental history was gathered through a phone call with his mother, who reported that the participant took his first steps when he was around 1-year-old and showed no delays in the development of his language skills. She reported major delays in the development of his fine and gross motor skills. He was able to button/unbutton his clothes and open/close the zipper independently at the age of 10 years. He became confident in using the fork/spoon/knife appropriately at around the age of 12 years. Learning to tie his shoelace was very difficult for him. His pencil grip was poor, and his handwriting was poor and immature for his age. He faced difficulties in learning how to trace, draw, color, and use the scissors as well as in playing with puzzles or LEGO. Moreover, the participant was reported to have faced difficulties in learning to ride the bicycle and throw, catch, and kick the ball. His mother did not report concerns in his medical history, and no previous neuropsychological assessment or intervention has been previously administered.

**Pre- evaluation.** The participant was seen for a pre evaluation on 18.10.2018 at the age of 31 years 1 month 11 days. The pre evaluation consisted of completing a full comprehensive neuropsychological assessment. As a result of the assessment, the participant was diagnosed with DCD since he scored significantly poor on all the sub-tests that assessed visuo-motor integration, visual perceptual skills, fine motor skills, and fine motor dexterity. Moreover, evidence supporting a DCD diagnosis included: (1) achieving significantly below age expectations on motor and visual spatial tests (2) achieving typical results on tests that did not assess skills related to motor and visual skills (3) having a long history of motor difficulties that date back to early childhood (4) on self-report rating scales, the participant reported that his motor, and visual spatial difficulties impact his performance in daily life.

**Intervention sessions.** In line with recommendations on duration of intervention suggested by Blanket et al. (2019), the participant took part in occupational therapy intervention plan, which consisted of 20 sessions over 10 weeks—one-hour session occurring twice per week. The targeted areas were agreed on with the participant before the start of the intervention based on the areas he found to be a priority for him which were: visual-motor coordination, visual-perception, visual attention, visual organization, eye-hand coordination, and body awareness skills. These areas were identified by participant as a priority in his life as he thought it would enhance his work performance, focus, concentration, and organization skills. The occupational therapist utilized different therapeutic tools to address the targeted areas, such as think fun tools, visual perceptual skill building tasks, brain games, picture puzzles, and beanbag toss. Another important aspect of the intervention was the use of participation- oriented approaches in that the participant had to apply the skills he was using in the session in his daily life, and report back to the therapist.

The session began with a 5-minute briefing where the participant would report on changes noted in his work performance or with daily life in relation to the skills addressed during the sessions. These changes pertain

to the specific skills addressed during the intervention sessions. This was followed by a 45-minute regimen of exercises. The session ended with a 10-minute self-evaluation to emphasize what was learnt after completing the intervention session.

**Post-evaluation.** The participant was seen for a post evaluation at the age of 31 years 7 months and 26 days on 03.05.2019. During the post evaluation, similar procedure to the initial evaluation was carried out. This involved a clinical interview and a neuropsychological assessment that involved both formal testing and completing self-report rating scales.

## Results

During the clinical interview of the post evaluation, the participant shared that he feels he has improved in some functions of his daily life, e.g., parking the car, perceiving graphs/drawings/tables more accurately, and being better at self-correction. He shared some feedback that included: “I’m starting to see details around me”, “using the strategy of looking at a screen or a document from left to right is really helpful which I did not use before”, and “I see a change in the way I throw the beanbags; it’s easier with less effort.”

Table 1 reports raw scores, standard scores, qualitative description at pre and post-tests, as well as RCI. The participant showed typical verbal reasoning and language skills on pre-test and post-test with no significant difference between both measures (RCI scores of WAIS IV similarities = 0.43, vocabulary =0.40, and information=0.39). When assessed on visual perceptual skills, there was a significant difference on three measures on pre-test and post-test (RCI scores of WAIS-IV block design=1.59, matrix reasoning=1.13, and visual puzzles=1.57). Additionally, a significant difference was found between pre-test and post-test on measures of processing speed skills that involved the use of motor and visual perceptual skills (RCI scores of WAIS-IV coding=1.92, and symbol search=1.91). When assessed on working memory skills, the participant’s performance varied, as a significant difference was found between pre-test and post-test on the digit span sub-test, but not on the arithmetic sub-test (RCI scores of WAIS-IV digit span=3.77, and arithmetic=0). However, it needs to be noted here that the participant’s performance on the pre-test was higher than the post-test on the digit span sub-test. As for the DKEFS- Trail Making Test, no significant difference was found between pre and post tests on the first 3 conditions (RCI scores of DKEFS condition 1=0, condition 2=0, and condition 3=0). However, a significant difference was found between pre and post tests on conditions 4 and 5 (RCI scores of DKEFS condition 4=1.82, and condition 5=12.05). It needs to be noted that, the participant achieved better on pre-test of condition 5 when compared to the post-test of condition 5.

On the RCFT and Grooved Pegboard, the participant’s scores remained within the impaired and atypical ranges on the pre-test and post-test; however, when comparing the time that it took him to complete the tasks, he was significantly faster on the post-test when compared to the pre-test (Grooved Pegboard, less by 6 minutes and 9 seconds when using dominant hand, less by 5 minutes and 5 seconds when using non-dominant hand, and on the RCFT less by 4 minutes).

Table 2 reports the results of the two self-report rating scales, the Adult Developmental Coordination Disorder (ADC) and Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q). On the ADC, the participant scored lower on the post-test than on the pre-test, which means that the impact of his motor and visual perceptual difficulties on different areas of his life was reported to be less after the intervention. The examples of the difference in the ratings on some items between pre-test and post-test are: (1) copying things down without making mistakes (frequently to sometimes), (2) finding your way around new buildings or places (frequently to sometimes), (3) have difficulty in parking a car (always to frequently), and (4) have difficulties in distance estimation (always to sometimes). On the Q-LES-Q, the participant reported improvement, which was reflected on the difference in scores between pre-test and post-test in the following domains: physical health/activities, feelings, household duties, leisure time activities, and general activities. The examples of the difference in the participant’s ratings on some items between pre-test and post-test are: (1) felt satisfied with your life (sometimes to often), (2) felt independent (rarely to sometimes), (3) felt good about your life (rarely to sometimes), and (4) felt a feeling of accomplishment with regard to household activities (rarely to sometimes).

Table 3 reports the results of the three self-report rating scales Psychiatric Diagnostic Screening Questionnaire (PDSQ), Adult Behavior Rating Scale (ABRS), and Behavioral Rating Inventory of Executive Function-Adult Version (BRIEF-A). On the PDSQ, the participant endorsed 4 less symptoms of major depressive disorders on post-test (below cutoff) when compared to pre-test (above cutoff). On the BRIEF-A and ABRS, the participant's scores were within the typical range for both the pre-test and the post-test.

## Discussion

This study provides evidence on the effectiveness of occupational therapy sessions with an adult diagnosed with DCD using neuropsychological testing as pre and post-measures. Our findings suggest that there was a significant difference between pre-test and post-test on: (1) WAIS-IV block design, matrix reasoning, and visual puzzles sub-tests which assessed visual perceptual skills (2) WAIS-IV coding and symbol search sub-tests which assesses processing speed and involves motor/visuomotor integration skills (3) DKEFS- Trail Making Test (condition 4) which assessed switching skills. Moreover, when comparing scores, the participant achieved better scores on post-measure when assessed on the RCFT and Grooved Pegboard compared to the pre-measure. The RCFT assesses visuo-motor integrations, while the Grooved Pegboard assesses fine motor dexterity.

Moreover, on self-report rating scales, the participant scored lower on the post-test when compared to pre-test on the ADC reflecting that his motor and visual perceptual difficulties on different areas of his life was reported to be less after the intervention. Moreover, on the Q-LES-Q, the participant reported improvement in the domains of physical health/activities, feelings, household duties, leisure time activities, and general activities when comparing pre and post-measures. Additionally, on the PDSQ, the participant endorsed 4 less symptoms of major depressive disorders on post-test (below cutoff) when compared to pre-test (above cutoff).

The participant initially presented at the outpatient clinic to rule out an attention deficit, and a full neuropsychological assessment was necessary to identify that the participant's reported difficulties were linked to having DCD rather than another neurodevelopmental disorder. This finding supports recommendations that a full comprehensive assessment is needed to diagnose DCD in adults (Blank et al., 2019).

The findings of the neuropsychological assessment carried out with the participant supports what is suggested in the literature regarding the difficulties encountered by adults with DCD. It has been suggested that adults with DCD face difficulties in daily tasks that utilize motor skills (Kirby et al., 2011; Kirby et al. 2010). During the initial interview, the participant shared that his motor deficits significantly impact his daily functioning, including tying his shoelaces or necktie, gripping a pencil, handwriting skills (both quality and speed of writing), drawing (e.g., graphs and diagrams), and grooming activities (e.g., shaving and folding clothes). Additionally, he reported difficulties in his visual perception skills, which included differentiating between right and left, poor body balance, poor body coordination or integration of two sides of the body, and poor hand-eye coordination. These difficulties have made it challenging for him to take part in sports activities, e.g., dancing, aerobics, and crafts, play musical instruments, follow road directions, and estimate measurements (e.g., distance and weight). Some studies have suggested that individuals with DCD show difficulties in their executive functioning skills including problem solving, conceptual thought, self-correction, judgment, and decision-making (Norris & Tate, 2010). However, this was not the case with the participant. Moreover, different studies have suggested that the difficulties faced by individuals with DCD influence their quality of life, and life satisfaction (Cantell et al., 2014). On the self-report, the participant reported difficulties in several areas in life satisfaction, including household duties, school or course work, and leisure time activities. As for emotional wellbeing, some studies suggest that adolescents and adults with DCD tend to develop negative emotions about themselves, and develop mental health related symptoms (Miyahara & Piek, 2006; Skinner & Piek, 2001; Tal-Saban et al., 2012; Kirby et al., 2013). On the psychiatric screening, the participant was found to have 9 symptoms related to major depressive disorder. Moreover, during the initial intake, the participant shared that he has been working closely with a psychotherapist for a number of years and reported issues regarding poor self-esteem and self-criticism.

Evidence gathered in this study to support the effectiveness of the occupational therapy sessions

included : (1) the significant difference in the participant's performance on tests that assessed motor and visual perceptual skills when comparing pre and post-measures (2) on self-report rating scales, the participant reported improvement after the intervention in motor skills, aspects of quality of life, and aspects of emotional wellbeing. The occupational therapy intervention in total covered 20 sessions (around 10 weeks). The number of sessions was in line with the recommendations in the literature that suggested that the intervention plan should not exceed 10 weeks (Blank et al., 2019). The intervention sessions utilized a body-function approaches where the focus was on the participant's motor and visual coordination as the basis for targeting skills that have had the greatest effect on his professional and personal performance. Targeting these skills has most likely improved his performance on tests that assessed these skills when comparing pre and post-measures.

This study has a number of limitations. First, it involves a case of one participant, and hence, the findings cannot be generalized. Second, the evaluation allowed for immediate treatment results but not of the long-term effects of the intervention. Third, the study investigated the effect of the occupational therapy without comparing it to other possible interventions. Fourth, the occupational therapy sessions was not based on a specific intervention plan as different intervention tools were utilized from different resources. Future studies need to further investigate the effectiveness of occupational therapy approach for adults with DCD. Furthermore, efforts should be channeled to provide guidelines for assessment and treatment of adults with DCD.

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Table 1

Scores on neuropsychological measures at pre-test and post-test, and RCI

Test	Pre-test		Post-test		RCI
	Raw/SS	Qualitative description	Raw/SS	Qualitative description	
WAIS-IV					
Block Design	12/3	Impaired	20/5	Borderline	1.59
Similarities	24/9	Average	21/8	Average	0.43
Digit Span	27/9	Average	18/5	Borderline	3.77
Matrix Reasoning	10/5	Borderline	11/6	Low Average	1.13
Vocabulary	29/8	Average	32/9	Average	0.40
Arithmetic	18/13	Above Average	18/13	High Average	0
Symbol Search	17/4	Borderline	21/5	Borderline	1.91
Visual Puzzles	8/6	Low Average	7/5	Borderline	1.57
Information	10/8	Average	11/9	Average	0.39
Coding	36/4	Borderline	42/5	Borderline	1.92
DKEFS- Trail Making Test					
Condition 1	60/1	Impaired	41/1	Impaired	0
Condition 2	88/1	Impaired	74/1	Impaired	0
Condition 3	94/1	Impaired	73/1	Impaired	0
Condition 4	199/1	Impaired	93/8	Average	1.82
Condition 5	57/6	Low Average	82/1	Impaired	12.05
	Raw	Qualitative description	Raw	Qualitative description	
Grooved					
Dominant Hand*	16.6 seconds	Impaired	9.7 seconds	Impaired	-
Non-dominant Hand**	10.5 seconds	Impaired	5.0 seconds	Impaired	-
RCFT	5.8 seconds	Atypical	1.8 seconds	Atypical	-

Note. WAIS-IV = Wechsler Adult Intelligence Scale, Fourth Edition; DKEFS = Delis-Kaplan Executive Function System; Beery-VMI-6 = Beery-Buktenica Developmental Test of Visual-Motor Integration, Sixth Edition; RCFT = Rey Complex Figure Test and Recognition Trial; Grooved = Grooved Pegboard; Raw = raw score; SS = scaled score; RCI= Reliable Change Index.

Table 2

*Scores on self-report rating scales of developmental coordination and quality of life at pre-test and post-test*

	Pre-test	Post-test
Self-report Scales	Score	Score
ADC	53	33
Q-LES-Q		
Physical health/activities	43	46
Feelings	41	50
Work	45	40
Household duties	22	29
School/course work	37	34
Leisure time activities	17	18
Social relations	32	30
General activities	54	64

*Note.* ADC = Adult Developmental Coordination Disorder; Q-LES-Q = Quality of Life Enjoyment and Satisfaction Questionnaire.

Table 3

Scores on self-report rating scales of psychiatric disorders, inattention, behavior, and executive functioning skills

		Pre-test		Post-test	
Self-report Scales	Score	Description	Score	Description	
<b>PDSQ</b>					
Major Depressive Disorders	9	Above cutoff	5	Below cutoff	
Posttraumatic Stress Disorder	0	Below cutoff	0	Below cutoff	
Bulimia/Binge-Eating Disorder	5	Below cutoff	3	Below cutoff	
Obsessive Compulsive Disorder	0	Below cutoff	0	Below cutoff	
Panic Disorder	0	Below cutoff	0	Below cutoff	
Psychosis	0	Below cutoff	0	Below cutoff	
Agoraphobia	0	Below cutoff	0	Below cutoff	
Social Phobia	0	Below cutoff	0	Below cutoff	
Alcohol Abuse/Dependence	0	Below cutoff	0	Below cutoff	
Drug Abuse/Dependence	0	Below cutoff	0	Below cutoff	
Generalized Anxiety Disorder	0	Below cutoff	0	Below cutoff	
Somatization Disorder	1	Below cutoff	0	Below cutoff	
Hypochondriasis	0	Below cutoff	0	Below cutoff	

ABRS				
Current Behavior				
Inattention Symptoms	1	Below cutoff	0	Below cutoff
Hyperactivity-Impulsivity Symptoms	2	Below cutoff	1	Below cutoff
Conduct/Oppositional Behavior Symptoms	0	Below cutoff	0	Below cutoff
BRIEF-A	SS	Qualitative description	SS	Qualitative description
Behavioral Regulation Index (BRI)	49	Normal range	41	Normal range
Inhibit	54	Normal range	45	Normal range
Shift	48	Normal range	46	Normal range
Emotional Control	46	Normal range	39	Normal range
Self-Monitor	51	Normal range	44	Normal range
Metacognition Index (MI)	55	Normal range	45	Normal range
Initiate	51	Normal range	46	Normal range
Working Memory	57	Normal range	39	Normal range
Plan/Organize	53	Normal range	44	Clinical range
Task Monitor	65	Clinical range	45	Normal range
Organization of Materials	60	Normal range	46	Normal range
Global Executive Composite	53	Normal range	39	Normal range

*Note.* PDSQ = Psychiatric Diagnostic Screening Questionnaire; ABRS = Adult Behavior Rating Scale; BRIEF-A = Behavioral Rating Inventory of Executive Function-Adult Version (BRIEF-A); SS = standards score.