

Effect of Coordination Exercises on Hand Function in Patient with Developmental Coordination Disorders: A Systematic Review and Meta-Analysis

Supplementary Table 1: Search strategy

Sr. no	Keywords	PEDro	Pubmed	Cochrane	Scopus
1.	“DCD” AND “hand function”	0	4	0	0
2.	“Coordination disorder” AND “hand function” AND “exercise”	0	0	0	0
3.	“Coordination disorder” OR “coordination” AND “exercise”	20	11	0	143
4.	“Developmental coordination disorder” AND “coordination” AND “exercise”	9	1	1	105
5.	“Developmental coordination disorder” AND “hand coordination” AND “exercise”	1	1	51	3
6.	"hand coordination" AND "DCD"	1	7	3	0
7.	“DCD” AND “hand coordination exercise”	0	2	0	0
8.	"DCD" AND "Fine skills" OR "Hand coordination"	0	0	0	0
9.	"developmental coordination disorder" AND "Hand movement" AND "coordination exercise"	0	0	0	0
10.	“Fine motor skill” AND “DCD”	0	17	3	0

Supplementary Table 2: Quality assessment of the included studies (PEDro scoring)

Study Authors/years	1	2	3	4	5	6	7	8	9	10	11	Total Score
Winnie W. Y. Hung and Marco Y. C. Pang, 2010 [16]	Y	Y	N	Y	N	N	Y	Y	Y	Y	Y	7
Greg Wood, Charlotte A. L. Miles, et.al, 2017 [17]	Y	Y	N	Y	N	N	N	Y	Y	Y	Y	6
Ada W. W. Ma, Shirley S. M. Fong et.al, 2018 [18]	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	8
Melody N. Grohs, Brandon T. Craig, et.al, 2020 [19]	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N	8
Jorge Lopes Cavalcante Neto, Bert Steenbergen, et.al, 2020 [20]	Y	Y	N	N	N	N	Y	Y	N	Y	Y	5
Yee-PayWuang, Chien-Ling Huang et.al, 2022 [21]	Y	Y	N	Y	N	N	Y	Y	N	Y	Y	6

Y represents the ‘Yes’ and N represents the ‘No’ for the quality assessment.

1. Eligibility criteria were specified.
2. Subjects were randomly allocated to groups.
3. Allocation was concealed.
4. The groups were similar at baseline regarding the most important prognostic indicators.

5. There was blinding of all subjects.
6. There was blinding of all therapists who administered the therapy.
7. There was blinding of all assessors who measured at least one key outcome.
8. Measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups.
9. All subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analysed by “intention to treat”.
10. The results of between-group statistical comparisons are reported for at least one key outcome.
11. The study provides both point measures and measures of variability for at least one key outcome.

Supplementary Table 3: Characteristics of included studies, Level of evidence, GRADE and PEDro scoring

Author/ Year/ Quality of study	Study Design	Population (n) Age (In years) (mean $\pm$ SD) Gender (M/F)	Intervention	Comparison	Outcome	
Winnie W. Y. Hung and Marco Y. C. Pang, 2010 [16] PEDro- 8 LOE- 1B GRADE moderate	Randomized controlled pilot intervention trial	n=23 school-aged children with DCD (12 group, 11 individual) Age 6 to 10 years Gender (19/4)	Group based Motor skills training programme Vs Individual based motor skill training program	Individual-based motor skill training same activities as the group training but done 1-on-1 with a therapist once a week for 8 weeks, plus the same home exercise program.	• MABC	
Greg Wood, Charlotte A. L. Miles, et.al, 2017 [17] PEDro- 7 LOE- 1B GRADE moderate	Randomized controlled trial	21 children with DCD (11 QET, 10 TT) Age 7 to 11 years Gender (15/6)	Quiet Eye Training (QET) group and Vs Technical Training (TT) group	Technical training control group	• MABC-2, • Quiet eye training • Catching performance • Parental questioner	
Ada W. W. Ma, Shirley S. M. Fong et.al, 2018	Randomized controlled trial	145 prepubertal Children with DCD	Taekwondo Training Vs	TKD group and control group and within individual	• Primary - Skeletal development • Secondary - (MABC), • Eye-hand coordination	

[18]		Age 6 to 9 years Gender (121/24)	Home exercises	groups.	• (mCTSIB)	
PEDro- 9 LOE- 1B GRADE- moderate						
Melody N. Grohs, et.al, 2020 [19] PEDro- 9 LOE- 1B GRADE- Moderate	Randomized controlled trial	28 Children with DCD (14 tDCS, 14 sham) Age 8 to 12 years Gender (M-28)	tDCS combine with fine manual motor skill training using the Purdue Pegboard Test Vs sham tDCS	Sham tDCS combined with the tDCS& fine manual motor skill training	• Primary- PPT • Secondary- JTHFT	
Jorge Lopes Cavalcante Neto et.al, 2020 [20] PEDro- 6 LOE- 1B GRADE moderate	Randomized controlled trial	32 children with DCD (16 Wii, 16 TST) Age 7 to 10 years Gender (24/8)	Wii training Vs Non-wii task specific training (TST)	Wii within-group comparisons-phase 1,2 & 3, TST within group – phase 1,2 & 3	• MABC-2	- - -
Yee-PayWuang, Chien-Ling Huang et.al,	Quasi experimental study	88 adolescents with DCD (44 HPT, 44 SOT)	Haptic Perception Training	Haptic Perception Training Program (HPT)	• JTHFT • Bruininks–Oseretsky Test of Motor Proficiency-Second	-

2022 [21] PEDro- 7 LOE- 2B GRADE- low		Age 13 to 16 years Gender (50/38)	Program (HPT) Vs Standard Occupational Therapy (SOT)	Vs Standard Occupational Therapy (SOT)	Edition (BOT-2), • Test of Visual-Perceptual Skills—Third Edition (TVPS-4), • Vineland Adaptive Behavior Scale-Chinese Version (VABS-C)
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Abbreviations: LOE- Level of Evidence, DCD- Developmental coordination disorder, MABC- Movement assessment battery for children, QET- Quiet Eye Training, TT- Technical Training, TKD- Taekwondo Training, mCTSIB- modified Clinical Test of Sensory Integration of Balance, tDCS- transcranial direct current stimulation, PPT- Purdue Pegboard Test, JTHFT- Jebsen-Taylor Test of Hand Function, TST- Task specific training, HPT- Haptic Perception Training Program, SOT- Standard Occupational Therapy, BOT- Bruininks–Oseretsky Test of Motor Proficiency-Second Edition, TVPS- Test of Visual-Perceptual Skills, VABS-C- Vineland Adaptive Behavior Scale-Chinese Version