

**‘Specialization in ICTs and Special Education: Psychopedagogy
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**TRACING THE DEVELOPMENTAL COORDINATION DISORDER
IN PRIMARY SCHOOL CHILDREN BY THEIR TEACHERS**

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ABSTRACT

Karra Evdokia: Developmental Coordination Disorder Screening in Primary school children by teachers
(Under the supervision of Antonis Kambas)

The purpose of this study was a screening procedure of developmental coordination disorder of school-age children (A', B' and C' Primary Class) by teachers and Physical Educators (PE). The sample consisted of 18 teachers and 8 PE who served in Primary Schools of the Municipality of Komotini, who evaluated a total of 227 students. For the DCD screening, the MABC-2 Checklist including 30 questions and divided into three sections was used. The statistical analysis was conducted by calculating the Intraclass Correlation Coefficient (ICC) of the answers in the Checklists of class teachers and Physical Educators. The t-test for couples was applied at the same time by both groups of teachers to compare the total scores. Furthermore, the percentage of children that were detected in the "red zone" was also measured. The results of the study showed low correlation in the MABC-2 Checklist of class teachers and Physical Educators, especially in sections A (ICC=.309, 95% CI LB=.186, UB=.422, $p<.001$) and B (ICC=.411, 95% CI LB=.297, UB=.514, $p<.001$). The correlation given by the two groups of evaluators in section C was also low but not as low as in the other two sections (ICC=.478, 95% CI LB=.371, UB=.572, $p<.001$). Additionally, the percentage of children with motor disorder detected by both groups at the same time (1,3% of the total sample) was found to be lower compared to the related bibliography. The results of the study, therefore, confirm the research hypothesis that class teachers and Physical Educators have a different approach of evaluation the same pupils.

Keywords: motor skills, school age, motor skills detection, class teachers, Physical Education Teachers

References

- Agostini, O. S., Magalhães, L., & Campos, A. F. (2014). Assessment of motor coordination and dexterity of six years old children: A psychometric analysis. *Motriz*, 20(2), 167-176. doi: dx.doi.org/10.1590/S1980-65742014000200006
- Agricola, A., Psotta, R., Abdollahipour, R., & Nieto, M. P. (2015). The differences of movement between children at risk of developmental coordination disorder and those not at risk. *Acta Gymnica*, 45(3), 129-138.
- American Psychiatric Association (APA). (2013). *The diagnostic and statistical manual of mental disorders*. Washington: American Psychiatric Association.
- American Psychiatric Association (APA). (2000). *Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR) (4th Ed. Text Revision)*. Washington: American Psychiatric Association.
- American Psychiatric Association APA (1994). *Diagnostic and Statistic Manual of Mental Disorders (4th Ed.)*. Washington: American Psychiatric Association.
- Anastasiadis, M., Kourtessis, T., Zisi, V. & Kioumourtzoglou, E. (2016). Knowledge of elementary school educators in Cyprus regarding developmental coordination disorder in childhood. *Journal of Physical Activity, Nutrition and Rehabilitation*, 129142. Ανακτήθηκε (12-12-2019) από www.panr.com.cy
- Αραμπατζή Μ. (2015). *Αξιολόγηση της Αναπτυξιακής Διαταραχής Κινητικού Συντονισμού Παιδιών Δημοτικού από Εκπαιδευτικούς Π.Ε μέσω της Λίστας Παρατήρησης Movement Assessment Battery for children-2*. Αδημοσίευτη μεταπτυχιακή διατριβή. Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης, Τμήμα Επιστήμης Φυσικής Αγωγής και Αθλητισμού. Σέρρες, Ελλάδα.
- Asunta P., Viholainen H., Ahonen T., Cantell M., Westerholm J., Schoemaker M.M., et al. (2016). Reliability and validity of the Finnish version of the motor observation questionnaire for teachers. *Human Movement Science, Elsevier* 53, 63-71.
Ανακτήθηκε (25-11-2019) από <https://www.sciencedirect.com/science/article/abs/pii/S0167945716302901?via%3Dihub>
- Barnett, A.L. (2008). Motor assessment in developmental coordination disorder: from identification to intervention. *International Journal of Disability, Development and Education*, 55(2), 113-129.
- Blank, R., Smits-Engelman, B., Polatajko, H., & Wilson, P. (2012). European Academy for Childhood Disability: Recommendations on the definition, diagnosis and

intervention of developmental coordination disorder (long version). *Developmental Medicine and Child Neurology*, 54, 54-93.

Bruininks, R.H. i Bruininks, B.D. (2005). *Bruininks-Osretsky Test of Motor Proficiency – Second Edition*. Minneapolis, MN. Pearson.

Burns, Y.R., Danks, M., O'Callaghan, M.J., Gray, P.H., Cooper, D., Poulsen, L., e al. (2009). Motor Coordination Difficulties and Physical Fitness of Extremely-Low-Birthweight Children. *Developmental Medicine and Child Neurology*, 51(2), 136-42.

Buys, A.M. (2014). Screening tools for developmental coordination disorder in grade 1 learners. Ανάκτηση (26-04-20) από: <http://hdl.handle.net/11660/1460>

Caravale B., Herich L., Zoia S., Capone L., Voller F., Carrozzi M., et al. (2019). Risk of Developmental Coordination Disorder in Italian very preterm children at school age compared to general population controls. *Official Journal of the European Paediatric Neurology Society*, 23, 296-303

Caravale B, Baldi S, Gasparini C, & Wilson BN. (2014). Cross-cultural adaptation, reliability and predictive validity of the Italian version of Developmental Coordination Disorder Questionnaire (DCDQ). *Journal of European Paediatric Neurology Society*, 18(3), 267- 272. doi: 10.1016/j.ejpn.2013.11.009.

Capistrano, R., Ferrari, E.P., Souza, L.P.D., Beltrame, T.S., & Cardoso, F.L. (2015). Concurrent validation of the MABC-2 motor tests and MABC-2 checklist according to the developmental coordination disorder questionnaire-br. *Motriz, Revista de Educação Física*, 21(1), 100-106.

Cicchetti, D.V., & Rourke, B.P. (2004). *Methodological and biostatistical foundations of clinical neuropsychology and medical and health disciplines*. London: Taylor & Francis Group.

Cousins, M., & Smyth, M. M. (2003). Developmental coordination impairments in adulthood. *Human Movement Science*, 22, 433–459.

Deconinck, F. J. A., De Clercq, D., Savelsbergh, G. J. P., Van Coster, R., Oostra, A., Dewitte, G., el al. (2006). Visual contribution to walking in children with developmental coordination disorder. *Child: Care, Health and Development*, 32, 711–722.

Dewey, D., & Wilson, B. N. (2001). Developmental Coordination Disorder: What Is It? *Physical & Occupational Therapy in Pediatrics*, 20, 5–27.

Dewey D., Kaplan B., Crawford S., & Wilson B. (2002). Developmental coordination disorder: Associated problems in attention, learning and psychosocial adjustment. *Human Movement Science*, 21, 905-918.

Dimitropoulou, D., Evaggelinou, C., Kourtesis, T., & Ellinoudis, T. (2018). Teacher rating checklists as assessment tools for the detection of Developmental Coordination Disorder: Their suitability for use by educators. *Journal of Physical Activity, Nutrition and Rehabilitation*. Ανακτήθηκε (3-1-2020) από <https://www.panr.com.cy/?p=1739>.

De Milander, M., Coetzee, F. F., & Venter, A. (2016). Teachers' ability to identify children with developmental coordination disorder. *African Journal for Physical Activity and Health Sciences (AJPHES)*, 22(41), 990-1005.

Edwards, J., Berube, M., Erlandson, K., Haug, S., Johnstone, H., Meagher, M., et al. (2011). Developmental Coordination Disorder in School-Aged Children Born Very Preterm and/or at Very Low Birth Weight: A Systematic Review. *Journal of developmental and behavioral pediatrics*, 32(9), 678-87, doi: 10.1097/DBP.0b013e31822a396a.

Ελληνούδης, Θ., Κυπαρίσσης, Μ., Γίτσας, Κ. & Κουρτέσης, Θ. (2009). Ικανότητα ανίχνευσης κινητικών δυσκολιών σε παιδιά ηλικίας 7-12 ετών από Καθηγητές Φυσικής Αγωγής με τη χρήση της δέσμης αξιολόγησης Movement Assessment Battery for Children. *Φυσική Αγωγή & Αθλητισμός*, 29 (3), 288-306.

Engel-Yeger B., Hanna-Kassis A., & Rosenblum S. (2012). Can gymnastic teacher predict leisure activity preference among children with developmental coordination disorders (DCD)? *Research in Developmental Disabilities*, 33, 1006–1013.

Faught, B.E., Cairney, J., Hay, J., Veldhuizen, S., Missiuna, C., Spironello, C.A. (2008). Screening for motor coordination challenges in children using teacher ratings of physical ability and activity. *Human Movement Science* 27, 177–189 doi:10.1016/j.humov.2008.02.001

Fliers E, Vermeulen S, Rijdsdijk F, Altink M, Buschgens C, Rommelse N, et al. (2009). ADHD And Poor Motor Performance From a Family Genetic Perspective. *Journal of the American Academy of Child and Adolescent Psychiatry*, 48 (1), 25-34.

Gallahue D.L (2002). *Αναπτυξιακή Φυσική Αγωγή για τα σημερινά παιδιά* (μτφ-επ: Ευαγγελινού Χ. & Παππά Α.) Θεσσαλονίκη: University Studio Press

Gallahue, D.L., & Ozmun, J.C. (2006). *Understanding motor development: infants, children, adolescents, and adults*. New York: McGraw Hill.

Gallahue D.L., & Ozmun J.C. (2002) *Understanding Motor Development*. New York: McGraw Hill Higher Education.

Gueze R.H., Jongmans M.J., Schoemaker M.M., Smits-Engelsman B.C.M. (2001) Clinical and research diagnostic criteria for developmental coordination disorder: a review and discussion. *Hum Mov Sci*, 20, 7–47.

Giofrè D., Cornoldi, C. & Schoemaker, M. M., (2014). Identifying developmental coordination disorder: MOQ-T validity as a fast screening instrument based on teachers' ratings and its relationship with praxic and visuospatial working memory deficits. *Research in Developmental Disabilities*, 35(12), 3518-3525 doi.org/(...)6/j.ridd.2014.08.032.

Gritzman T., (2012). *An evaluation of teachers' ability to identify children with motor difficulties.* Ανακτήθηκε (3-3-2020) από <http://wiredspace.wits.ac.za/bitstream/handle/10539/12484/Tamara%20Gritzman%20-%20Masters%20Submission%20for%20Graduation.pdf?sequence=2&isAllowed=y>

Gubbay, S.S. (1975). Clumsy children in normal schools. *The Medical Journal of Australia*, 1, 233-236.

Hands, B. & Larkin, D. (2001). Fitness and DCD. In S. A. Cermak & D. Larkin (Eds.), *Developmental coordination disorder: Theory and practice*. San Diego: Singular Press.

Hartman, A., Van den Bos, C., Stijnen, T., Pieters, R. (2006). Decrease in Motor Performance in Children With Cancer Is Independent of the Cumulative Dose of Vincristine. *Cancer*, 106(6), 1395-1401.

Hay, J., & Donnelly, P. (1996). Sorting out the boys from the girls: teacher and student perceptions of student physical ability. *Avante*, 2, 36–52.

Henderson, S.E. & Barnett, A.L. (1998). The classification of specific motor coordination disorders in children: Some problems to be solved. *Human Movement Science*, 17, 449-469.

Henderson, S.E., & Sugden, D.A. (1992). *Movement Assessment Battery for Children*. London: Psychological Corporation.

Henderson S. E., Sugden D.A., & Barnett A. (2007). *Movement Assessment Battery for Children – Second edition (Movement ABC-2)*. London, UK: The Psychological Corporation.

Holsti, L., Grunau, R.V., & Whitfield, M.F. (2002). Development coordination disorder in extremely low birth weight children at nine years. *Journal of Developmental Behaviour Pediatrics*, 23(1), 9-15.

Hulme, C., & Lord, R. (1986). Clumsy children: A review of recent research. *Child Care, Health and Development*, 12, 257-269.

Junaid, K. A & Fellowes, S. (2009). Gender Differences in the Attainment of Motor Skills on the Movement Assessment Battery for Children. *Physical & Occupational Therapy In Pediatrics*, 26(1-2), 5-11. DOI: 10.1080/J006v26n01_02

Junaid, K. A. & Fellowes, S. (2006). Gender Differences in the Attainment of Motor Skills on the Movement Assessment Battery for Children. *Physical & Occupational Therapy in Pediatrics*, 26(1-2), 5-11. doi: 10.1080/J006v26n01_02

Junaid, K., Harris, S.R., Fulmer, A., Carswell, A. (2000). Teachers' use of the MABC Checklist to identify children with motor difficulties. *Pediatr Phys Ther*, 12, 158–163.

Καμπάς Α., Βενετσάνου Φ., & Γαβριηλίδου Ζ. (2013). ΔΕΚΑ-ΠΡΟ» Δημόκριτος-Εργαλείο Κινητικής Ανίχνευσης για παιδιά προσχολικής ηλικίας. Ανακτήθηκε (20-2-2020) από <https://docplayer.gr/30065382-Deka-pro-dimokritos-ergaleio-kinitikis-anihneysis-gia-paidia-prosholikis-ilikias-kampas-a-venetsanoy-f-gavriilidoy-z.html>

Kambas A., Michalopoulou M., Fatoutos I., Christoforidis C., Manthou E., Giannakidou D., et al. (2012). The Relationship Between Motor Proficiency and Pedometer- Determined Physical Activity in Young Children, *Pediatric Exercise Science*, 24, 34-44.

Kambas, A., Venetsanou, F., Giannakidou, D., Fatouros, I.G., Avloniti, A., Chatzinikolaou, A., et al. (2012). The Motor-Proficiency-Test for children between 4 and 6 years of age (MOT 4–6): An investigation of its suitability in Greece. *Research in Developmental Disabilities*, 33(2012), 1626–1632.

Καμπάς, Α., Φατούρος, Ι., Αγγελούσης, Ν., Γούργουλης, Β., & Ταξιλδάρης, Κ. (2003). Η Επίδραση της Ηλικίας και του Φύλου στις Συναρμοστικές Ικανότητες στην Παιδική Ηλικία. *Αναζητήσεις στη Φυσική Αγωγή & τον Αθλητισμό*, 1(2), 152-158.

Κανιόγλου, Α. Τσορμπατζούδης, Χ. & Μπαρκούρης, Β. (2004). Διερεύνηση της σχέσης της Αναπτυξιακής Διαταραχής της Συναρμογής με το Αυτοσυναίσθημα σε μαθητές της Ε΄ και ΣΤ΄ τάξης Δημοτικού. *Φυσική Αγωγή και Αθλητισμός*, 53, 7-19.

Κανιόγλου, Α., Τσορμπατζούδης, Χ., & Τσομπόλη, Π. (2002). Διερεύνηση της σχέσης μεταξύ Κινητικής Αδιεξότητας και Φυσικών Ικανοτήτων. *Βιβλίο περιλήψεων του 5^{ου} πανελληνίου συνεδρίου Φυσικής Αγωγής και Αθλητισμού*, 48.

Καραμπατζάκη, Ζ., (2002). Πρώιμη ανίχνευση και αναγνώριση της Αναπτυξιακής Διαταραχής του Ψυχοκινητικού Συντονισμού σε παιδιά ηλικίας 4-8 ετών. Διδακτορική Διατριβή. Πανεπιστήμιο Ιωαννίνων

Κασσωτάκης, Ι. Μ. (1997). *Η αξιολόγηση της επιδόσεως των μαθητών. Μέσα, μέθοδοι, προβλήματα, προοπτικές*. Αθήνα: Γρηγόρης.

Kenny, T. J., Hebel, J. R., Sexton, M. J., & Fox, N. L. (1987). Developmental screening using parent report. *Journal of Developmental and Behavioral Pediatrics*, 8(1), 8–11. doi.org/10.1097/00004703-198702000-00003

Kirby, A., Edwards, L., & Sugden, D. (2011). Emerging Adulthood in Developmental Coordination Disorder: Parent and Young Adult Perspectives. *Research in Developmental Disabilities* 32(4), 1351-60.

Kita, Y., Ashizawa, F., & Inagaki, M. (2019). Is the motor skills checklist appropriate for assessing children in Japan? *Brain & Development. Elsevier* 6, 483-489. doi.org/10.1016/j.braindev.2019.02. 012

Kolle E., Steene –Johannessen, J., Klason – Heggebo, L., Andersen, L., & Anderssen, S. (2009). A 5-yr Change in Norwegian 9-yr Olds Objectively Assessed Physical Activity Level. *Medicine & Science in Sports & Exercise*, 41(7), 1368-73.

Kourtessis, T., Tsiggilis, N., Tzetzis, G., Kapsalas, Th., Tserkezoglou, S., & Kioumourtzoglou, E. (2003). Reliability of the “Movement Assessment Battery for Children Checklist” in Greek school environment. *European Journal of Physical Education*, 8:2, 202-210. doi: 10.1080/1740898030080207

Kourtessis, T., Tsigilis, N., Maheridou, M., Ellinoudis, T., Kiparissis, M., & Kioumourtzoglou, E. (2008). The Influence of a Short Intervention Program on Early Childhood and Physical Education Teachers’ Ability to Identify Children with Developmental Coordination Disorders. *Journal of Early Childhood Teacher Education*, 29, 276–286.

Kroes, M., Vissers, Y. L. J., Sleijpen, F. A. M., Feron, F. J. M., Kessels, A. G. H., & Bakker, E., (2004). Reliability and validity of a qualitative and quantitative motor test for 5- to 6- year old children. *European Journal of Pediatric Neurology*, 8, 135– 143.

Κυπαρίσσης, Μ. (2008). *Ικανότητα αναγνώρισης μαθητών με κινητική αδεξιότητα από καθηγητές φυσικής αγωγής, δασκάλους και γονείς*, Δημοσίευτη Διδακτορική Διατριβή, Δημοκρίτειο Πανεπιστήμιο Θράκης. Κομοτηνή, Ελλάδα.

Κωνσταντίνου, Ι. Χ., & Κωνσταντίνου, Χ. Ι. (2017). *Η αξιολόγηση στην εκπαίδευση. Η αξιολόγηση του εκπαιδευτικού έργου, του εκπαιδευτικού και του μαθητή ως θεωρία και πράξη*. Αθήνα: Gutenberg

Κωνσταντινίδου, Ζ. (2010). *Ψυχομετρικά χαρακτηριστικά της δέσμης αξιολόγησης Movement Assessment Battery for Children-2 σε παιδιά προσχολικής ηλικίας που συμμετέχουν σε πρόγραμμα Μουσικοκινητικής Αγωγής*. Δημοσίευτη Διδακτορική Διατριβή. Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης, Τμήμα Επιστήμης Φυσικής Αγωγής και Αθλητισμού. Σέρρες, Ελλάδα.

Li, Y.C., Wu, S.K., Cairney, J., & Hsieh, C.Y. (2011). Motor coordination and health-related physical fitness of children with developmental coordination disorder: A three-year follow-up study. *Research in Developmental Disabilities, 32*(2011), 2993–3002.

Lingam, R., Hunt, L., Golding, J., Jongmans, M., Emond, A. (2009). Prevalence of Developmental Coordination Disorder Using the DSM-IV at 7 Years of Age: A UK Population-Based Study. *Pediatrics, 123*, 693-700. doi.org/10.1542/peds.2008-1770

Logan, S.W., Robinson, L.E., Rudisill, M.E., Wadsworth, D.D., Morera, M. (2014). The comparison of school-age children's performance on two motor assessments: the test of gross motor development and the movement assessment battery for children. *Physical Education and Sport Pedagogy, 19*(1), 48-59, doi: 10.1080/17408989.2012.726979

Magalhães, L.C., Cardoso, A., Missiuna, C. (2011). Activities and participation in children with developmental coordination disorder: A systematic review. *Research in Developmental Disabilities, 32*(4), 1309-16.

Martin, N.C., Piek, J., Baynam, G., Levy, F., Hay, D. (2010). An Examination of the Relationship Between Movement Problems and Four Common Developmental Disorders. *Human Movement Science, 29*(5), 799-808.

Martini, R., St-Pierre, M.F., Wilson, B.N. (2011). French Canadian crosscultural adaptation of the Developmental Coordination Disorder Questionnaire '07: DCDQ-FC. *Can J Occup Ther, 78*, 318–327.

Missiuna, C., Rivard, L., & Pollock, N. (2004). They're Bright but Can't Write: Developmental Coordination Disorder in School Aged Children. *Teaching Exceptional Children Plus, 1*(1), n1.

Missiuna, C., Rivard, L., & Bartlett, D. (2003). Early identification and risk management of children with developmental coordination disorder. *Pediatric Physical Therapy, 15*, 32–38.

Μποζιάρης, Β. (2008). *Η αυτοματοποιημένη αξιολόγηση της επίδοσης του μαθητή στην έκθεση ως μία νέα εναλλακτική τεχνική*. Αδημοσίευτη Μεταπτυχιακή Διατριβή, Πανεπιστήμιο Ιωαννίνων, Σχολή Επιστημών της Αγωγής Παιδαγωγικό Τμήμα Δημοτικής Εκπαίδευσης. Ιωάννινα, Ελλάδα.

Noda, W., Ito, H., Fujita, C., Ohnishi, M., Takayanagi, N., Someki, F. (2013). Examining the relationships between attention deficit/ hyperactivity disorder and developmental coordination disorder symptoms, and writing performance in Japanese second grade students. *Research in Developmental Disabilities, 34*(2013), 2909–2916.

Orton, S.T. (1937). *Reading, writing and speech problems in children*. New York: Norton.

Piek, P., & Edwards, K. (1997). The identification of children with developmental coordination disorder by class and physical education teachers. *Pub Med*, 67(1), 55-67. doi.org/10.1111/j.2044-8279.1997.tb01227.x

Πίκουλα, Ι. (2011). *Διερεύνηση της διαταραχής του κινητικού συντονισμού σε παιδιά ηλικίας 5-9 ετών με χαμηλές κινητικές επιδόσεις*, Δημοσίευτη Μεταπτυχιακή Διατριβή, Τμήμα Επιστήμης Φυσικής Αγωγής και Αθλητισμού, Θεσσαλονίκη, Ελλάδα.

Πλατανίτη, Π. (2015). *Η μελέτη της καταλληλότητας της λίστας παρατήρησης MABC-2 για αξιολόγηση των κινητικών δυσκολιών μαθητών νηπιαγωγείου*. Ανακτήθηκε (9-3-2020) από <http://ikee.lib.auth.gr/record/271816?ln=el>

Rosengren, K. S., Deconinck, F. J., DiBerardino, L. A., Polk, J. D., Spencer-Smith, J., De Clercq, D., et al., (2009). Differences in gait complexity and variability between children with and without developmental coordination disorder. *Gait & Posture*, 29, 225–229.

Rosenblum, S., & Engel-Yeger, B., (2015). Hypo-Activity Screening in School Setting; Examining Reliability and Validity of the Teacher Estimation of Activity Form (Teaf). *Occupational therapy international*, 22(2), 85-93. doi.org/10.1002/oti.1387

Ρούσσος, Π.Α., & Τσαούσης Γ. (2011). *Στατιστική στις επιστήμες της συμπεριφοράς με τη χρήση του SPSS*. Αθήνα: Τόπος.

Schoemaker, M.M., Flapper, B., Reinders-Messelink, H., & de Kloet, A. (2008). Validity of the motor observation questionnaire for teachers as a screening instrument for children at risk for developmental coordination disorder. *Human Movement Science*, 27, 190–199.

Schoemaker, M.M., Flapper, B., Verheij, N.P., Wilson, B. N., Reinders-Messelink, H.A., & de Kloet, A. (2006). Evaluation of the developmental coordination disorder questionnaire as a screening instrument. *Developmental Medicine and Child Neurology*, 48, 668-673.

Schoemaker, M.M. & Kalverboer, A.F. (1994). Social and affective problems of children who are clumsy: How early do they begin? *Adapted Physical Activity Quarterly*, 11, 130-140.

Schoemaker, M.M., Niemeijer, A.S., Flapper, B.C., Smits-Engelsman, B.C. (2012). Validity and reliability of the Movement Assessment Battery for Children-2 Checklist for children with and without motor impairments. *Dev Med Child Neurol*, 54, 368–75.

Schoemaker, M.M., Smits-Engelsman, B.C.M., Jongmans, M.J. (2003). Psychometric properties of the Movement ABC Checklist as a screening instrument for children with Developmental Coordination Disorder. *Developmental Clinical Psychology and Psychiatry*, 39, 545-561.

Sherrill, C. (2015). *Προσαρμοσμένη Φυσική Δραστηριότητα Αναψυχή και Σπορ, Διεπιστημονική και Δια Βίου Εκπαίδευση*. (Επιμέλεια – πρόλογος ελληνικής έκδοσης Χριστίνα Ευαγγελινού). Αθήνα: Πασχαλίδης.

Stott, D.H., Moyes, F.A., & Sugden, D.A. (1985). Test of Motor Impairment-Henderson revision (Rewiew). *Adapted Physical Activity Quarterly*, 2, 167-189.

Ταπεινός, Α. (2018). *Ανίχνευση κινητικών δυσκολιών και σύσταση σώματος σε παιδιά πρώτης σχολικής ηλικίας*. Αδημοσίευτη Μεταπτυχιακή Διατριβή, Τ.Ε.Φ.-Δ.Π.Θ., Ελλάδα.

Tawade, S.R., Hande, D. N, Naik, N., (2019). To study developmental coordination disorder in school going children in Loni. *International Journal of Multidisciplinary Research and Development*, 6(2), 167-169.

Τζίβα-Κωσταλά, Β., Δουρούκας, Κ. Κωσταλά, Α. & Κουρτέσης Θ. (2009). Πιλοτική καταγραφή της γνώσης των καθηγητών φυσικής αγωγής και δασκάλων για την Αναπτυξιακή Διαταραχή του Συντονισμού. *Πρακτικά Πανελληνίου Συνεδρίου «Υγεία, Περιβάλλον, Εκπαίδευση: Προβληματισμοί-Προτάσεις* (σελ. 77-83). Αθήνα: Εθνικό και Καποδιστριακό Πανεπιστήμιο.

Tsiotra, G. D., Flouris, A. D., Koutedakis, Y., Faught, B. E., , Nevill, A. M., Lane, A.M., et al. (2006). A Comparison of Developmental Coordination Disorder Prevalence Rates in Canadian and Greek Children. *Journal of Adolescent Health*, 39, 125–127. doi:10.1016/j.jadohealth.2005.07.011

Ulrich, D.A. (2000). *Test of gross motor development: examiner's manual*. (2nd ed). Austin, Tex: Pro-Ed.

Van Dellen, T., Vaessen, W., & Schoemaker, M. M. (1990). Clumsiness: Definition and selection of subjects. In A. F. Kalverboer (Ed.), *Developmental biopsychology: Experimental and observational studies in children at risk*. 135–152. Ann Arbor, MI: University of Michigan Press.

Van Waelvelde, H., Peersman W, Lenoir M, Engelsman BC (2007). Convergent Validity Between Two Motor Tests: Movement-ABC and PDMS-2. *Adapted Physical Education Quarterly*, 24(1), 59-69.

Venetsanou F., Kambas A, Ellinoudis, Th., Fatouros, I., Giannakidou D., Kourtessis, Th. (2011). Can the Movement Assessment Battery for Children-Test be the “gold

standard” for the motor assessment of children with Developmental Coordination Disorder? *Research in Developmental Disabilities*, 32, 1–10.

Venetsanou F., Kambas A., Aggelousis N., Serbezis V., Taxildaris K. (2007). Use of the Bruininks –Oseretsky Test of Motor Proficiency for identifying children with motor impairment. *Developmental Medicine & Child neurology*, 49, 846-848.

Wall, A.E., (1982). *Physically awkward children: A motor development perspective*. In J.P. Das, R.F. Mulcahy, & A.E. Wall (Eds.), *Theory and research in learning disabilities*, (pp. 253-268). New York, N.Y.: Plenum Press. doi.org/10.1007/978-1-4899-2157-4_13

Wilson, B.N., Neil, K., Kamps, P.H., & Babcock, S. (2012). Awareness and knowledge of developmental co-ordination disorder among physicians, teachers and parents. *Child: care, health and development*, 39(2), 296-300 doi:10.1111/j.1365-2214.2012.01403.x

Wilson, B.N., Crawford, S.G., Green, D., Roberts, G., Aylott, A., Kaplan, B.J. (2009). Psychometric properties of the revised developmental coordination disorder questionnaire. *Phys Occup Ther Pediatr*, 29, 182–202.

Wilson, B.N., Kaplan, B.J., Crawford, S.G., Campbell, A., Dewey, D. (2000). Reliability and validity of a parent questionnaire on childhood motor skills. *American Journal of Occupational Therapy*, 54, 484–493 doi:10.5014/ajot.54.5.484

Wilson, B.N., Dewey, D., & Campbell, A. (1998). *Developmental Coordination Disorder Questionnaire (DCDQ)*. Canada: Alberta Children's Hospital Research Center.

Wu, S.K., Lin, H., Li, Y., Tsai, C., & Cairney, J. (2010). Cardiopulmonary Fitness and Endurance in Children with Developmental Coordination Disorder. *Research in Developmental Disabilities*, 31(2), 345-9.

Zwicker, J. G., Missiuna, C., Harris, S. R., & Boyd, L. A. (2012). Developmental coordination disorder: A review and update. *European Journal of Paediatric Neurology*, 16(6), 573-581.