



**UNIVERSITY OF WEST ATTICA  
SCHOOL OF HEALTH AND CARE SCIENCES  
PHYSIOTHERAPY DEPARTMENT**

**PhD THESIS SUMMARY**

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**TITLE :**

"Task-Oriented Physical Therapy Intervention for Children with (Possible-Probable) Developmental Coordination Disorder (DCD)"

**SUMMARY :**

Developmental Coordination Disorder (DCD) is defined as neurodevelopmental disorder characterized by difficulties in acquiring and performing gross and fine motor skills, with the main feature being poor coordination, which significantly affects the child's daily activities and participation in them (Blank et al., 2019). These difficulties usually begin in early childhood and persist into adolescence and adulthood. A key characteristic is the absence of an underlying neurological injury or cognitive deficit that would justify its appearance (Smits-Engelsman et al., 2015).

The onset of symptoms is chronologically placed in the early developmental period, but diagnosis cannot typically be made before the age of 5 years (Blank et al., 2012). Motor impairments are evident in early childhood, and if any other underlying medical condition has been excluded, these children are considered at increased risk for DCD (Smits-Engelsman et al., 2015). According to Blank et al. (2019), DCD is one of the most common neurodevelopmental disorders, with the prevalence in school-aged children (5-11 years) being around 5%-6%. Children with DCD face significant difficulties in performing functional activities, mainly due to impairments in three areas: postural control, motor learning, and sensorimotor coordination (Geuze, 2005). Approximately 73% to 87% of these children exhibit significant deficits in postural control (balance) leading to increased incidents of falls, limited participation in activities, and hampering their motor skills development. Generalized hypotonia, combined with muscle weakness in the trunk, pelvis, and lower extremities, significantly impacts static and dynamic balance achievement and maintenance (Kordi et al., 2016). As a result, these children, compared to typically developing peers, show lower scores in general balance assessment tests, reduced adaptive balance responses, and increased fall rates (Verbeque et al., 2021).

Research on the diagnosis and targeted therapeutic approach for individuals with Developmental Coordination Disorder (DCD) has evolved and enriched in recent years. However, most of the research focuses on school-aged children, primarily over the age of 5-6 years (Damiano, 2021). However, motor deficits are apparent from early childhood and will persist into adulthood. The need to expand and enrich the assessment tools to detect children who are at high risk ("at risk") and diagnose them before or during the first years of school education is crucial and has been expressed globally (Wall, 2004). Early diagnosis will lead to a more specialized and multi-factorial therapeutic approach with significant positive effects on functionality and quality of life (Lee & Zwicker, 2021).

Despite the growing research effort for the diagnosis and recognition of Developmental Coordination Disorder (DCD) as a distinct clinical condition, there is a significant research gap in the application of specialized rehabilitation interventions in children aged 3-6 years. This gap limits the understanding and development of effective interventions in this critical age group.

The aim of this doctoral thesis is to investigate the impact of a task-oriented physical therapy program on the improvement of balance and functionality in children diagnosed with or “at risk” for Developmental Coordination Disorder (DCD).

## REFERENCES :

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