

## ORIGINAL ARTICLE

# Developmental coordination disorder in early childhood - A preliminary epidemiological study in greek schools

Thomas Kourtessis<sup>1</sup>, Evridiki Tsougou<sup>1</sup>, Maria Maheridou<sup>1</sup>, Nikolaos Tsigilis<sup>2</sup>,  
Maroula Psalti<sup>1</sup>, & Efthimis Kioumourtzoglou<sup>1</sup>

1. Department of Physical Education & Sports Science, Democritus University of Thrace, Greece, 2. Department of Physical Education & Sports Science, University of Thessaly, Greece

## ABSTRACT

**Background:** The need for early and accurate identification of developmental coordination disorders (DCD) has been stressed by many researchers. The purpose of the present study is an initial investigation of the prevalence of DCD within the Greek school environment in early childhood.

**Methods:** Participants were 354 early childhood students (204 boys and 160 girls) of 14 early childhood public centers and schools of two urban areas of Northern and Central Greece. The Movement Assessment Battery for Children (MABC) was used for assessment.

**Results:** Based on the norms of the battery, six children of the total sample (1.6%) exhibited performance that corresponded to the lowest 5% of the continuum suggesting definite coordination disorder. Furthermore, 39 children of the same group (10.8%) were characterized "at risk" since their motor performance corresponded between the 6th and 15th percentiles of the continuum. Finally, more boys than girls "fell" under the cut off points of 15th and 5th percentiles.

**Conclusions:** Within its limitations, the present study suggests that the prevalence of DCD in Greek children during early childhood appears to be much lower compared to similar international studies. Having a starting point, we feel that there is a good reason for further investigation with psychological assessment tests and pediatric developmental screening in the cases needed, so as to define the factors contributing to our results.

**Key words:** prevalence, developmental coordination disorder, childhood, Greece, schools.

## INTRODUCTION

Developmental Coordination Disorder (DCD) is described by the Diagnostic and Statistical Manual-IV<sup>1</sup> as a movement disorder characterized by a marked impairment in the development of motor coordination abilities that significantly interferes with performance of daily activities and/or academic per-

formance. The difficulties observed are not consistent with the child's intellectual abilities and are not caused by a pervasive developmental disorder or general medical conditions that could explain the coordination deficits.<sup>1</sup> Furthermore, it is stated that manifestations of the disorder regarding young children may include clumsiness and delays in achieving developmental milestones such as walking, crawling, sitting, tying shoelaces, buttoning shirts, zipping pants.

Data from relative studies indicate that, without intervention, developmental coordination problems not only persist<sup>2,3,4</sup> but can severely affect other aspects of daily living such as behavior<sup>4,5</sup> learning and academic achievement,<sup>6</sup> self esteem and other emotional characteristics,<sup>7</sup> participation in physical activities<sup>8,9</sup> as well as physical fitness.<sup>10</sup> Furthermore, it appears that problems in motor coordination may have an impact on more practical issues of every day life such as crossing a road,<sup>11</sup> personal appearance or organizational matters.<sup>12</sup>

Therefore, there is an agreement regarding the urgent need for early and accurate identification of developmental coordination disorders<sup>13,14,15,16</sup> as there is scientific evidence that early and specific intervention has positive outcomes.<sup>17,18</sup> According to the international bibliography the prevalence of DCD ranges between 5% and 7% of the total school population.<sup>1,15,16,19</sup> However, since medical and educational systems often fail to recognize early this condition the affected children usually reach school age undiagnosed and are only recognized when the aforementioned secondary academic, behavioral and emotional problems emerge to some degree.<sup>14</sup>

Another issue that upgrades the importance of early identification and assessment is comorbidity. During the last few years the notion that DCD may not be a discrete disorder<sup>20</sup> but often co-exists with other types of learning disabilities seems to gain support.<sup>21,22,23</sup> Research data reveal that motor difficulties are much more common in children with learning disabilities,<sup>24</sup> speech and language disorders,<sup>14</sup> attention deficit hyperactivity disorders,<sup>19</sup> or perceptuo-motor disorders<sup>25</sup> than it was initially believed. Therefore, identifying DCD may be an important step for locating the aforementioned comorbid conditions.

Limited existing data have indicated that DCD is present within the Greek school population.<sup>17,26</sup> However, accurate prevalence figures have not yet established. The purpose of

**Address for correspondence:** Thomas Kourtessis, Ph.D. Assistant, Professor, Democritus University of Thrace Department of Physical Education & Sports Science University Campus 69100, Komotini, Greece.  
Tel. +3025310 39704, Fax +3025310 39704  
E-mail: tkourtes@phyed.duth.gr