Investigating the Relationship Between Two Assessments used to Identify children with Developmental Coordination Disorder

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INTRODUCTION
Developmental Coordination Disorder (DCD) is defined by the DSM-IV as a condition in which a child’s performance in daily activities that require motor coordination is substantially below that expected given the chronological age and intelligence of that individual (Criterion A). The manifestation of this condition can be observed in different aspects of the child’s life, which may include marked delays in achieving motor milestones (sitting, walking, etc.), “clumsiness,” poor handwriting and poor performance in sports. This disorder can also significantly interfere with academic achievement and/or activities of daily living (Criterion B). It is estimated that 6% of children within the school population have motor coordination difficulties that hinders their progress. No single assessment is yet considered to be the “gold standard” for identifying children with DCD. Thus, professionals use a variety of procedures ranging from informal checklists to complete standardized tests. The Movement ABC is a battery of tests commonly used by physical therapists to assess motor and coordination skills and diagnose children with DCD. Although the Movement ABC is a good measure for children with motor coordination difficulties, it may not provide a complete understanding of the disorder. The Physical and Neurological Examination for Soft Signs (PANESS) is another assessment designed to identify children with motor coordination difficulties which is used by clinicians. The PANESS differs from the MABC assessment in that it focuses on the neurobiology of motor difficulty. This compels one to ask how the PANESS examination contributes to the diagnosis of DCD and if so, how does the neurobiological aspect lend more or different information about these children?

PURPOSE
The purpose of this study was to (1) examine the correlations between scores on the MABC and PANESS examinations, (2) determine whether or not these correlations provide enough evidence to prove that these two examinations provide us with different information about DCD.

MATERIALS AND METHODS

Subjects
A total of 20 children aged 5-10 years participated in the study (Figure 1).

Correlations (Pearson, Two Tailed) between the MABC and PANESS are presented in Table 1.

RESULTS

Table 1. Correlation (Pearson) between PANESS and MABC (n=20)

<table>
<thead>
<tr>
<th></th>
<th>MABC</th>
<th>PANESS</th>
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<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1.00</td>
<td>0.381</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>&lt;0.05</td>
<td>0.086</td>
</tr>
<tr>
<td>N</td>
<td>20,000</td>
<td>20,000</td>
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Table 1 and Figure 4 both show the correlations between the total scores obtained by the 20 children on each test. As Table 1 indicates, the overall correlation between the Movement ABC and PANESS is 0.381 (p < 0.05; 15% shared variance). Pearson’s product moment correlations were used to examine the relationship between the two tests. The correlation coefficient between the MABC and PANESS is 0.381 (15% shared variance), indicating that although these two assessments are used to identify children with motor coordination problems, they may be testing different aspects of the disorder. The MABC test focuses on the physical manifestations of DCD which has its limitations because it can be difficult to identify exactly what is wrong with a child’s motor coordination. The PANESS, however, allows clinicians to look at the disorder through a neurological view point. Because the relationship between these two assessments is not significant, it is evident that these tests are discovering something different about DCD. Further investigation will be needed to see how the physical and neurobiological aspects of these assessments lend more or different information about the children diagnosed with DCD. This information is important because it may provide us with valuable information that can be used to assist children with motor coordination problems. These findings also allude to something very important; examiners must not forget the bidirectional nature of genetic, neural behavioral and environmental influences on individual development. In order to achieve a unifying perspective on how to explain the global similarities and individual differences in motor development, one must take all of those influences into consideration. Further investigation is needed to determine what other assessments are needed to provide the examiner with a holistic view of a child with DCD.

REFERENCES