The relationship between motor performance and peer relations in 9- to 12-year-old children

D. Livesey, M. Lum Mow, T. Toshack and Y. Zheng
School of Psychology, The University of Sydney, Sydney, NSW, Australia
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Abstract
Background  Poor motor skills have been associated with peer relationship difficulties, with lower peer preference and greater likelihood of suffering from withdrawal and low self-worth. Most research into these relationships has focused upon children with motor problems and on activities involving physical skills (play/sport). The current study examined the link between motor performance and peer relations in 9- to 12-year-old children in both physical and non-physical (schoolwork) settings using a community sample.

Methods  Participants were 192 school children whose motor performance was tested using the Movement Assessment Battery for Children. Peer acceptance was assessed using the Peer Rating Scale and teachers completed the Peer Exclusion subscale of the Child Behaviour Scale to indicate each child's peer status. Children were also asked to indicate their level of physical activity and their perceived freedom in leisure using self-report questionnaires.

Results  Children with poor motor performance had lower levels of physical activity, and freedom in leisure and were less preferred by their peers in both play and classroom settings. These effects were stronger for boys than for girls. Teacher indicated that children with poorer motor skills experienced higher levels of peer rejection in the classroom setting. When motor performance was separated into fine- and gross-motor performance it was found that only the latter was significantly correlated with peer acceptance in the play context but that fine-motor skills contributed significantly to variance in teacher ratings of peer exclusion in the classroom setting.

Conclusions  The results support and extend earlier findings that children with poor motor performance are less accepted by their peers in play settings and provide some support for this extending to settings involving low levels of physical activity (classroom settings). The results similarly support previous findings that motor performance is associated with perceived freedom in leisure and with the likelihood of participating in active pursuits.

Introduction
While there is now overwhelming evidence that strong peer relations are important for healthy development (Evans & Roberts 1987; Parker & Asher 1987; Hartup 1996; Ladd 2005), many children do not have promising peer relationships during their school years because of certain personal attributes (Schoemaker & Kalverboer 1994). One prominent factor is poor motor skills (Kanioglou et al. 2005). There is sound evidence, at least in relation to physical (play/sport) settings, that children value physical ability in others and that physical limitations like poor motor skills can be associated with peer relationship difficulties and lower sociometric preference scores on measures such as the Peer Rating Scale (Singleton & Asher 1977; Asher et al. 1979).
or popularity scores on questionnaire measures such as that used by Chase and Dummer (1992).

Chase and Drummer found that being good at sport was an important factor in determining social popularity. This was particularly so for boys but less for girls where appearance was more important. Vannatta and colleagues (2009) similarly found that peer perceptions of athletic ability correlated significantly with peer acceptance (measured by Peer Rating Scale) and that, along with appearance and academic competence, athletic ability accounted for significant unique variance in peer acceptance. They had predicted that peer acceptance would demonstrate stronger associations with attractiveness for girls and athleticism for boys but this distinction was not found. Hymel and colleagues (2002) also observed that athleticism is an attribute common to highly accepted individuals. This finding concurs with that of Lopez-Williams and colleagues (2005) who found with a sample of children diagnosed with Attention Deficit/Hyperactivity Disorder that athletic performance (performance on tests of general fitness and specific ball skills) significantly predicted children’s sociometric status as measured by Peer Rating Scale and by peer nominations. Recent evidence, emerging particularly from a focus upon the problems faced by children with Developmental Coordination Disorder or DCD (American Psychiatric Association 2000) indicates that children with poor motor skills are likely to suffer withdrawal and low self-worth, and such children are more likely to suffer peer neglect, rejection or bullying (Schoemaker & Kalverboer 1994; Rose et al. 1997; Skinner & Piek 2001; Piek et al. 2006). In such studies DCD has typically been identified as poor performance on a standardized motor assessment. Henderson and Sugden (1992), for example, proposed that scores below the 5th percentile on their Movement Assessment Battery for Children (MABC) indicate definite motor problems (DCD), while scores between the 5th and 15th percentiles indicate borderline motor problems. Such children tend to participate less in physical activities (Cairney et al. 2005) and have lower perceptions of their leisure competence and control over leisure behaviour (Poulsen et al. 2007). Such self-perception and behaviour is likely to exacerbate co-ordination problems and hence increase the likelihood of peer rejection through avoidance of activities likely to improve their motor ability (Henderson 1992). This is particularly the case in relation to the physical (play/sport) settings that have been the focus of most of this research. Little is known of the extension of this into non-physical (e.g. classroom) settings, although there is some research that indicates a preference in such settings for children who are perceived as physically ‘normal’ over those seen as having physical disability (Nabors & Keyes 1997).

The current study examines the association between motor performance and peer relations across a community sample of 9- to 12-year-old children, examining both physical (active play) and non-physical (schoolwork) settings. Two measures of peer relations are used, the first, the Peer Rating Scale has been used widely in the study of peer relationships and is perceived as a reliable sociometric tool (Oden & Asher 1977; Schneider 2000) that provides a measure of peer preference. The second measure is a teacher rating of peer exclusion (the Peer Exclusion subscale of the Child Behaviour Scale). This has also been used to obtain information regarding peer relationships among children (Ladd 1996; Ladd & Proffit 1996). Peer exclusion, which can include ignoring or not allowing someone to be part of social activities, is a behavioural expression of peer rejection (Ladd & Profilet 1996; Asher et al. 2001; Ladd 2005).

It was expected that there would be a significant relationship between motor performance and peer acceptance/peer exclusion in both play and schoolwork settings and that motor performance would be related to level of physical activity and to perceived freedom in leisure. Motor performance, and to a lesser extent physical activity and perceived freedom in leisure were expected to account for significant variance in peer relationships in both play and work settings with a possible gender influence upon this effect. Previous studies examining gender effects (Chase & Dummer 1992; Vannatta et al. 2009) are contradictory on this point.

Tests of motor performance typically measure both gross- and fine-motor skills. The former include ball skills and balance tasks of the sort associated with out-of-class physical/sporting activities while the latter require hand-eye co-ordination in a static setting and might be expected to be most associated with performance in the classroom (‘non-physical’) setting. It might therefore be expected that if motor performance is associated with peer preference, performance on fine-motor skills would be more associated with peer preference in the non-physical setting while gross-motor skills would be more associated with peer preference in the play setting.

Given the results from previous studies with clinical groups such as those with DCD or Attention Deficit/Hyperactivity Disorder (as cited above), it was expected that a comparison of children at the extremes of the motor performance distribution might yield similar results (assuming the community sample includes sufficient children in the ‘at risk of DCD’ range). Children who performed poorly on the MABC (those with high risk of motor impairment) would be expected to have lower peer acceptance, higher peer exclusion, lower physical activity and lower perceived freedom in leisure than those with good motor ability.
Data analysis plan

The presence of gender differences was determined for each variable using independent samples *t*-tests. Pearson correlations were used to examine simple associations between motor performance, physical activity, perceived freedom in leisure and peer acceptance/rejection, separately for boys and for girls. Hierarchical multiple regression analyses examined the unique association of each attribute with peer acceptance/peer rejection. This entailed sequential entry of (1) age and gender; (2) MABC performance; (3) physical activity and perceived freedom in leisure; and (4) the interaction between gender and MABC (in order to detect differences in the strength of the association between motor performance and peer relations as a function of gender). Separate analyses were run for the three peer relation measures: peer preference in the play and schoolwork settings and teacher ratings of peer exclusion. Where MABC performance contributed significantly to variance in the peer relations measure, the contributions of fine-motor and gross-motor performance were examined by hierarchical multiple regression analyses with sequential entry of age and gender at step 1 and manual dexterity, ball skills and balance at step 2. Finally, in order to compare the results from this study with previous studies with clinical groups, those with poor performance (having MABC impairment scores greater than 1 standard deviation above the mean) were compared with those with good performance (greater than 1 standard deviation below the mean) on each measure using independent sample *t*-tests.

Method

Participants

With ethics approval from the University of Sydney Human Research Ethics Committee, 192 children (112 girls and 80 boys) aged 9–12 years (mean = 129 months, SD = 11.1, range = 105–147) for whom parental consent had been obtained were recruited from four Catholic schools located within middle-class areas of suburban Sydney. Six year-4 classes, four year-5 classes and six year-6 classes were tested with the number of participants in each class ranging from 5 to 12 (mean = 10). Each class sample included both boys and girls, consisting of all children for whom parental consent was given (hence haphazard groupings).

Measures/procedure

All children completed four assessment tasks over three separate testing sessions over a period of 2 months.

Motor performance was assessed using the MABC. This is a test of motor impairment that was normed in North America and has been successfully employed by Australian researchers to detect children at risk (e.g. Coleman *et al*. 2001). The children were tested on the set of manual dexterity, ball skills and balance tasks appropriate to their age (Band 3 tests for children aged 9 and 10 years and Band 4 tests for those aged 11 and 12 years). Total impairment scores were calculated as per the manual (where a higher score indicates poorer performance).

Sociometric preference was assessed using the Peer Rating Scale. Children indicated how much they liked to interact at play and at work with each of their classmates who were participating in the study. A visually presented 3-point scale was used, 3 = ‘really, really like to’ (represented by a ‘smiley’ face), 2 = ‘don’t mind’ (represented by a ‘neutral’ face) and 1 = ‘really really don’t like to’ (represented by a ‘frowny’ face). The sociometric preference score for each child was the average of the scores given to that child by participating classmates (i.e. a score between 0 and 3, where a higher score indicates more liked). This was calculated for both play (SP-Play) and schoolwork (SP-Work) settings.

Children’s level of physical activity was assessed using the self-report Participation Questionnaire – short version (Cairney *et al*. 2006). This provides an estimate of the frequency and nature of a child’s physical activity. Thirteen of its 18 questions measure activity (in free-time and organized sport), and the other five assess inactivity. The score on the latter is subtracted from the score on the former to produce a total score (where a higher score indicates greater participation). Scores can range between −19 and +44, where a strong negative score indicates that sedentary pursuits dominate, while a strong positive score indicates that active pursuits dominate.

Perceived freedom in leisure was assessed using the Leisure Diagnostic Battery – short form (Witt & Ellis 1989). This comprises 24 items that require the participant to choose one of three responses: ‘sounds a lot like me’ (3), ‘sounds a little like me’ (2) or ‘doesn’t sound like me’ (1). Scores on all items are summed, thus scores can range between 24 and 72 (where a higher score indicates greater perceived freedom in leisure).

Classroom teachers also completed the five-item Peer Exclusion subscale of the Child Behaviour Scale as an additional measure of each child’s peer status. The five items in the scale were: ‘Not much liked by other children’, ‘Peers avoid this child’, ‘Excluded from peers’ activities’, ‘Is ignored by peers’ and ‘Ridiculed by peers’. For each item the teachers rated the child on a 3-point scale: 1 = ‘Doesn’t apply’, 2 = ‘Applies sometimes’, 3 = ‘Certainly applies’. The average across the five items constituted a child’s score with a higher score indicating greater peer
exclusion. Teachers were also asked to indicate situations in which the item was true. Six such situations were given: classroom activities, classroom discussion, eating lunch, free time in class – playing cards/board games, free time in class – toys being shared, reading/listening to stories plus one ‘other’ category where the teacher was asked to state the situation.

Results

Mean (standard deviations) and range of scores on each measure are shown in Table 1.

The MABC results show that while the majority of children fall within the normal range of scores, a relatively high percentage of children showed poor performance. Of the 192 children, 30% had a total impairment score above 10 (i.e. below the 15th percentile on the MABC norms), including 26 children (13.5% of the sample) with a score above 14 (i.e. below the 5th percentile). Such scores indicate moderate to high risk of motor difficulties (Henderson & Sugden 1992; Kanioglou et al. 2005).

The average SP-Play score was positive, indicating that more participants were rated positively than negatively in play contexts but the range of scores indicates a spread from clearly negative to clearly positive peer relations. This is also the case for SP-Work although in this (low physical) setting scores tended to be more strongly positive. The results for the Participation Questionnaire (measuring physical activity) demonstrate that a wide range of participation in physical activity was represented in the sample. Scores ranged from moderately strong negative values (inactivity outweighing activity) to strongly positive ones (active pursuits outweighing inactive ones).

Perceived freedom in leisure scores reflected almost the full range of values possible on the Leisure Diagnostic Battery with a tendency towards greater perceived freedom in leisure.

The teachers’ ratings of peer exclusion (T-PE) indicated that they considered most children to have relatively low levels of peer exclusion (mean close to 1) although the full range of scores was used. Fifty per cent of the children received only ‘1’ ratings. For the other 50% (those receiving ratings of 2 or 3 on some or all items) these ratings were associated with particular situations a total of 300 times. Of these, the majority were in the classroom setting (e.g. 32% were ‘In classroom activities’) while only 10% were identified as ‘Other’ and related to outdoor games and playground activities.

Gender differences

Significant gender differences were found only on the two peer rating measures. For both SP-Play and SP-Work girls received significantly higher ratings than did boys. In the play setting the mean (SD) for girls was 0.25 (0.58) and for boys 0.02 (0.69), t(190) = 2.362, P = 0.019 and in the work setting girls’ mean was 1.67 (2.88) and boys’ 0.08 (2.89), t(190) = 3.767, P < 0.001.

Association between variables

The intercorrelations between the measures are shown in Table 2. For boys there was a modest but significant correlation between motor performance and both SP-Play and SP-Work, indicating that children who demonstrated poorer motor performance were less preferred by their peers in both settings.

Table 1. Mean, standard deviation and range for age in months, motor performance (MABC), sociometric preference at both play (SP-Play) and work (SP-Work), participation in physical activity (Phys Act), rated teacher ratings of peer exclusion (T-PE) and perceived freedom in leisure (PFL) and teacher ratings of peer exclusion (T-PE).

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean (SD)</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABC</td>
<td>8.64 (5.7)</td>
<td>0 to 39</td>
</tr>
<tr>
<td>SP-Play</td>
<td>0.15 (0.64)</td>
<td>–1.5 to 1.7</td>
</tr>
<tr>
<td>SP-Work</td>
<td>1.00 (2.98)</td>
<td>–7.3 to 8.5</td>
</tr>
<tr>
<td>Phys Act</td>
<td>4.99 (0.89)</td>
<td>–14 to 29</td>
</tr>
<tr>
<td>PFL</td>
<td>57.27 (7.53)</td>
<td>29 to 72</td>
</tr>
<tr>
<td>T-PE</td>
<td>1.16 (0.37)</td>
<td>1 to 3</td>
</tr>
</tbody>
</table>

MABC, Movement Assessment Battery for Children.

Table 2. Pearson correlations between age in months, motor performance (MABC), sociometric preference at both play (SP-Play) and work (SP-Wk), teacher ratings of peer exclusion (T-PE), participation in physical activity (Phys Act) and perceived freedom in leisure (PFL) showing the correlation separately for boys and girls.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Age</th>
<th>MABC</th>
<th>SP-Play</th>
<th>SP-Wk</th>
<th>T-PE</th>
<th>Phys Act</th>
</tr>
</thead>
<tbody>
<tr>
<td>MABC</td>
<td>Boys</td>
<td>0.003</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>0.174</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP-Play</td>
<td>Boys</td>
<td>0.117</td>
<td>–0.228*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>0.121</td>
<td>–0.164</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SP-Wk</td>
<td>Boys</td>
<td>0.000</td>
<td>–0.245*</td>
<td>0.740**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>0.150</td>
<td>–0.029</td>
<td>0.733**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-PE</td>
<td>Boys</td>
<td>–0.215</td>
<td>0.447**</td>
<td>–0.458**</td>
<td>–0.465**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>–0.140</td>
<td>0.348**</td>
<td>–0.116</td>
<td>–0.053</td>
<td></td>
</tr>
<tr>
<td>Phys Act</td>
<td>Boys</td>
<td>0.072</td>
<td>–0.297**</td>
<td>0.198</td>
<td>0.122</td>
<td>–0.240*</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>–0.058</td>
<td>–0.205*</td>
<td>0.089</td>
<td>0.092</td>
<td>–0.046</td>
</tr>
<tr>
<td>PFL</td>
<td>Boys</td>
<td>0.076</td>
<td>–0.138</td>
<td>0.009</td>
<td>0.068</td>
<td>0.014</td>
</tr>
<tr>
<td></td>
<td>Girls</td>
<td>0.023</td>
<td>–0.139</td>
<td>–0.001</td>
<td>0.152</td>
<td>–0.201*</td>
</tr>
</tbody>
</table>

*P < 0.05, **P < 0.01.

MABC, Movement Assessment Battery for Children.
These associations were much weaker for girls; however, for both girls and boys there was a significant correlation between teacher ratings of peer exclusion and motor performance, indicating that teachers assessed children with poorer motor performance to have greater levels of exclusion. For boys, there were moderately strong negative correlations between teacher ratings of peer exclusion and both SP-Play and SP-Work, indicating concordance between the two measures of peer relations but this was not the case for girls. For both boys and girls, poorer motor performance was weakly (but significantly) associated with lower levels of physical activity and perceived freedom in leisure was positively associated with level of physical activity.

Multiple regression analyses

Results of the hierarchical multiple regression analyses examining the contributions of variables to each of the peer relationship measures are shown in Table 3.

SP-Play: The total variance explained by the model was 9.9%, with gender and motor performance each accounting for significant variance.

SP-Work: The total variance explained by the model was 7.4% with only gender accounting for significant variance.

T-PE: The total variance explained by the model was 19%, with age and motor performance accounting for significant variance in peer exclusion ratings.

Despite the gender differences in strengths of correlations shown in Table 2, in none of the regression analyses did the interaction between gender and MABC performance contribute significantly to variance in the peer relations measure.

Results of hierarchical multiple regression analyses examining the contributions of sub-categories of motor performance to variance in SP-Play and T-PE are shown in Table 4.

SP-Play: The model accounted for 9.7% of the variance in SP-Play, with gender and ball skills accounting for significant variance. The contribution of balance just failed to reach significance ($P = 0.06$).

T-PE: The model accounted for 22.5% of the variance in peer exclusion, with age, manual dexterity and balance contributing significantly to variance in teachers’ ratings of peer exclusion and the contribution of ball skills just failing to reach significance ($P = 0.07$).

Children with MABC scores greater than 1 SD above the mean (i.e. above 14) were compared with those whose scores were greater than 1 SD below the mean (i.e. below 3) using independent samples $t$-tests. Note that a MABC score of 14 corresponds to the 5th percentile on the MABC norms and hence scores above 14 are at high risk of motor impairment. In this category there were 26 children (13 boys, 13 girls) while the group consisting of children with good motor performance (>1 SD below the mean) consisted of 21 children (12 boys, 9 girls). On all measures except SP-Work these groups differed significantly (as shown in Table 5).

Children in the poor performing group had lower preference scores on SP-Play, were less physically active, perceived themselves as having less freedom in leisure and were rated by their teachers as having higher peer exclusion.

Discussion

The results support earlier findings that children with poor motor skills are less accepted by their peers in play settings and...
provide some evidence of this extending to settings involving low levels of physical activity (classroom settings).

Previous research suggested that children with DCD are more likely to have lower sociometric preference scores when rated by their peers (Skinner & Piek 2001). This was supported in the present study by the comparison between children with good and poor motor performance. While the poor performers had not been diagnosed with DCD, their motor performance was in the range identified with this group (below the 5th percentile) and their peer relations were significantly poorer than the comparison group. This link between motor performance and peer relations was also evident across the range of motor performance, with a significant (albeit weak) relationship between motor performance and sociometric preference scores across the community sample. The stronger relationship found for boys on all the measures of peer relations appears to support the Chase and Dummer (1992) finding that being good at sport is an important determinant of social popularity for boys but much less so for girls. The regression analyses indicated that both gender and motor performance contributed significantly to variance in sociometric preference scores in the play setting and to teacher ratings of peer exclusion; however, in neither case was there a significant contribution to variance by the interaction between gender and motor performance. This indicates that despite differences in the correlations, the contribution to variance in the peer measures does not differ significantly as a function of gender, providing some support for Vannatta and colleagues (2009) who found a significant relationship between athletic ability and peer relations for both boys and girls.

As expected, gross-motor skills (ball skills and, to a lesser extent, balance) contributed to variance in SP-Play while fine-motor skills did not account for significant variance. However, contrary to expectations, motor performance did not contribute significantly to variance in sociometric preference in the schoolwork setting. While motor performance accounted for only a modest proportion of the variance in SP-Play, given the multitude of factors likely to contribute to children’s preference scores, the results indicate that it is nevertheless important to take motor performance into account when dealing with children who have difficulties in peer acceptance. It appears also that in the physical setting the peer preference of boys is more likely to be related to motor skills than it is for girls. This may reflect the greater emphasis on physical prowess as a source of social status by boys, particularly in relation to outdoor games/sport (Chase and Dummer 1992).

The significant association between teacher ratings of peer exclusion and motor impairment scores also lends support to considering motor performance when evaluating peer relations. Given the focus of the teacher ratings upon the schoolwork setting, it appears that motor performance is an important factor to consider when evaluating peer relations even in such ‘non-physical’ settings. The significant association between teachers’ ratings of peer exclusion and both SP-Play and SP-Work, along with the significant contribution of fine-motor skills towards variance in teachers’ peer exclusion ratings, indicates that even in the work setting motor performance should be considered when evaluating reasons for peer exclusion. In this setting it appears that gender does not play a significant role in peer exclusion but that age does, with older children being rated as being less excluded. It is likely that the responses by the teachers were skewed towards identifying classroom activities rather than more physical (outdoor play/sport) ones by the nature of the situations offered in the Peer Exclusion subscale. Nevertheless, the scale did provide an avenue to examine peer exclusion in a non-physical setting and hence provided valuable data for this study. In order to access ratings of peer exclusion in more physical settings it may be useful to expand the ‘other’ category to include explicit outdoors activities in future studies.

Motor performance was also significantly related to children’s reported participation in physical activity (for both boys and girls), those with poorer co-ordination participating less. This once again supports and extends earlier findings that children with movement difficulties (e.g. those with DCD) have lower participation levels, particularly in active pursuits (Cairney et al. 2005). The expected association between motor performance and perceived freedom in leisure was in the predicted direction (those with better motor performance having higher freedom in leisure scores), but this association was weak. However the comparison between children with poor motor performance and those with good performance on the MABC

### Table 5. Comparison of the low performing group (MABC scores >14) with the high performing group (MABC scores <3) on sociometric preference at both play (SP-Play) and work (SP-Work), participation in physical activity (Phys Act), perceived freedom in leisure (PFL) and teacher ratings of peer exclusion (T-PE)

<table>
<thead>
<tr>
<th>Measure</th>
<th>MABC group</th>
<th>Mean (SD)</th>
<th>t (45 d.f.)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-Play</td>
<td>Low performance</td>
<td>−0.40 (0.69)</td>
<td>2.05</td>
<td>0.047</td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>0.35 (0.59)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>0.35 (3.24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>1.39 (3.1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>1.16 (7.94)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>6.24 (5.98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>54.96 (8.02)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>60 (5.39)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>High performance</td>
<td>2.46 (2.62)</td>
<td></td>
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<tr>
<td></td>
<td>High performance</td>
<td>1.38 (0.58)</td>
<td></td>
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<tr>
<td></td>
<td>High performance</td>
<td>1.04 (0.13)</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Measure</th>
<th>MABC group</th>
<th>Mean (SD)</th>
<th>t (45 d.f.)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phys Act</td>
<td>Low performance</td>
<td>1.69 (7.94)</td>
<td>2.17</td>
<td>0.035</td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>6.24 (5.98)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PFL</td>
<td>Low performance</td>
<td>54.96 (8.02)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>60 (5.39)</td>
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</tr>
<tr>
<td></td>
<td>High performance</td>
<td>2.46 (2.62)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-PE</td>
<td>Low performance</td>
<td>1.38 (0.58)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>High performance</td>
<td>1.04 (0.13)</td>
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</tbody>
</table>

MABC, Movement Assessment Battery for Children.
showed that the former group perceived themselves as having significantly less freedom. This appears to support the claim by Poulsen and colleagues (2007) that children with co-ordination problems have lower perceived competency in relation to their abilities. While motor performance was associated with motor activity and, to a lesser extent, with perceived freedom in leisure, only motor performance itself contributed significantly to variance in SP-Play and this was influenced by gender (as indicated above).

The results clearly indicate the importance of considering motor ability when examining peer relations and this is in spite of using a measure of motor performance that was designed primarily to detect motor impairment. The MABC does not distinguish well among those who are performing in the normal range (the best 75% of children). This could have contributed to a restriction in range of motor performance scores and hence to a lessening of the correlations between this measure and the other variables. It must also be noted that the sample appeared to have an over-representation of children at the lower end of motor performance (higher impairment scores), with 30% below the 15th percentile on the MABC norms. The reason for this is not known. The sampling procedure was not aimed at gaining a ‘representative’ sample of the age group but rather was an opportunistic sample relying entirely upon schools volunteering to participate and then parents giving their permission.

Whatever the reason, given the wide range of motor abilities sampled, this does not detract from the overall findings of an association between motor performance and peer acceptance/rejection.

Key messages

• Children with poorer motor performance are less accepted by their peers in play settings and are identified by teachers as having greater peer exclusion in the classroom setting.

• Children’s self-reported level of physical activity is related to their motor performance, those with poorer performance participating less in active play/sport.

• Children with poor motor performance perceive themselves as having lower physical competency and lower freedom in leisure than those with strong motor performance.

• It is important to take motor performance into account when dealing with children who have difficulties in peer relations.

References


