

Impact of physiological characteristics and generalised self-efficacy on children's physical activity: Preliminary findings across varying proficiency levels

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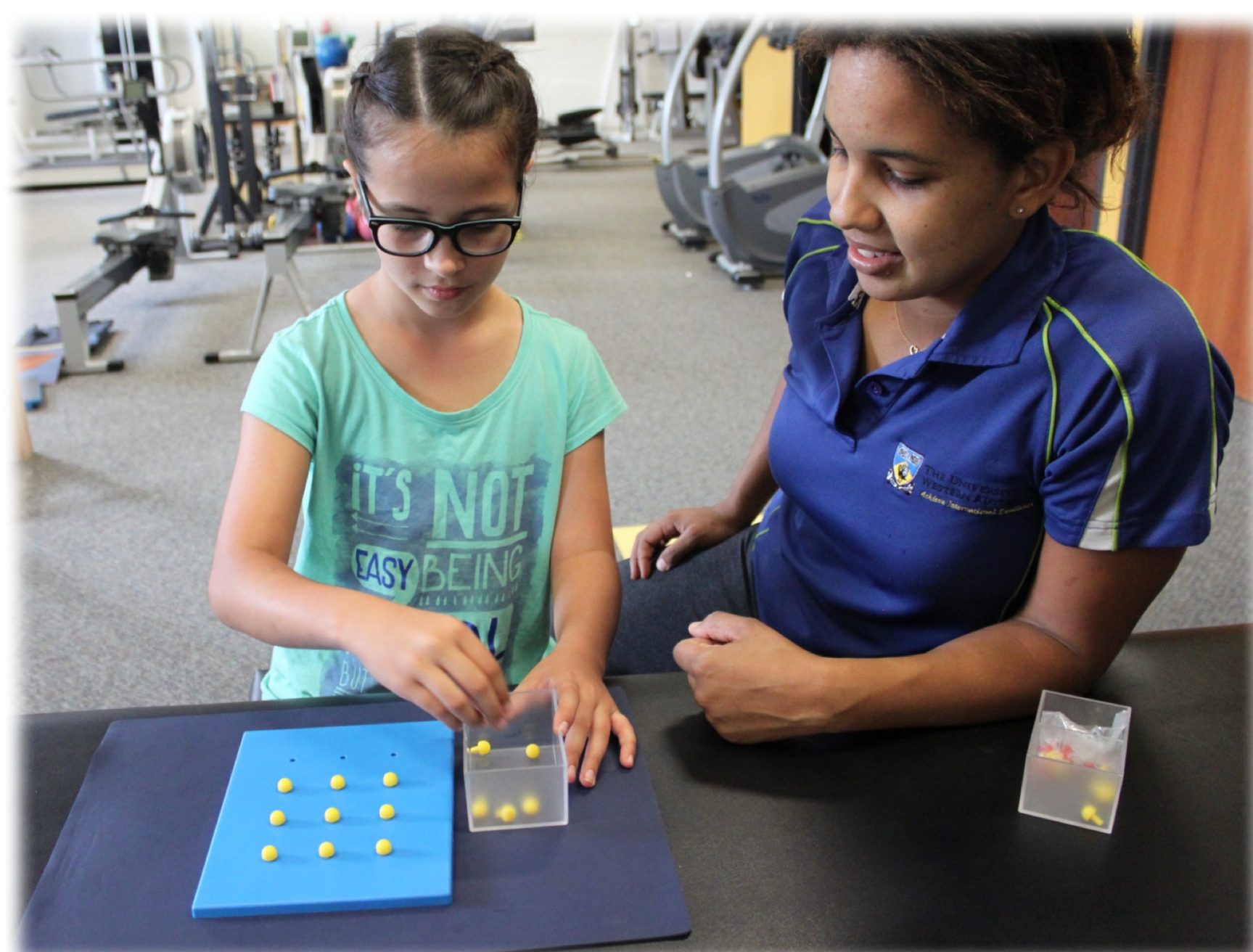


Recent research has identified children with low movement proficiency (LMP) as having lower levels of physical activity, and decreased health-related physical fitness including aerobic capacity, muscle strength and increased body fat compared to typically developing (TD) children.¹⁻⁴ To date, the impact of these variables on physical activity has yet to be determined.

METHODS

Sixty-four children (mean age 7.95±1.6yrs) participated in the study. Movement proficiency was assessed using the Movement Assessment Battery for Children-2 (MABC-2); 32 classified as TD (>17th %), 11 considered to be 'at risk of movement difficulties' (LMP1; 6-16th %), and 21 with significant movement difficulties (LMP2; <5th %). Children completed the following measures:

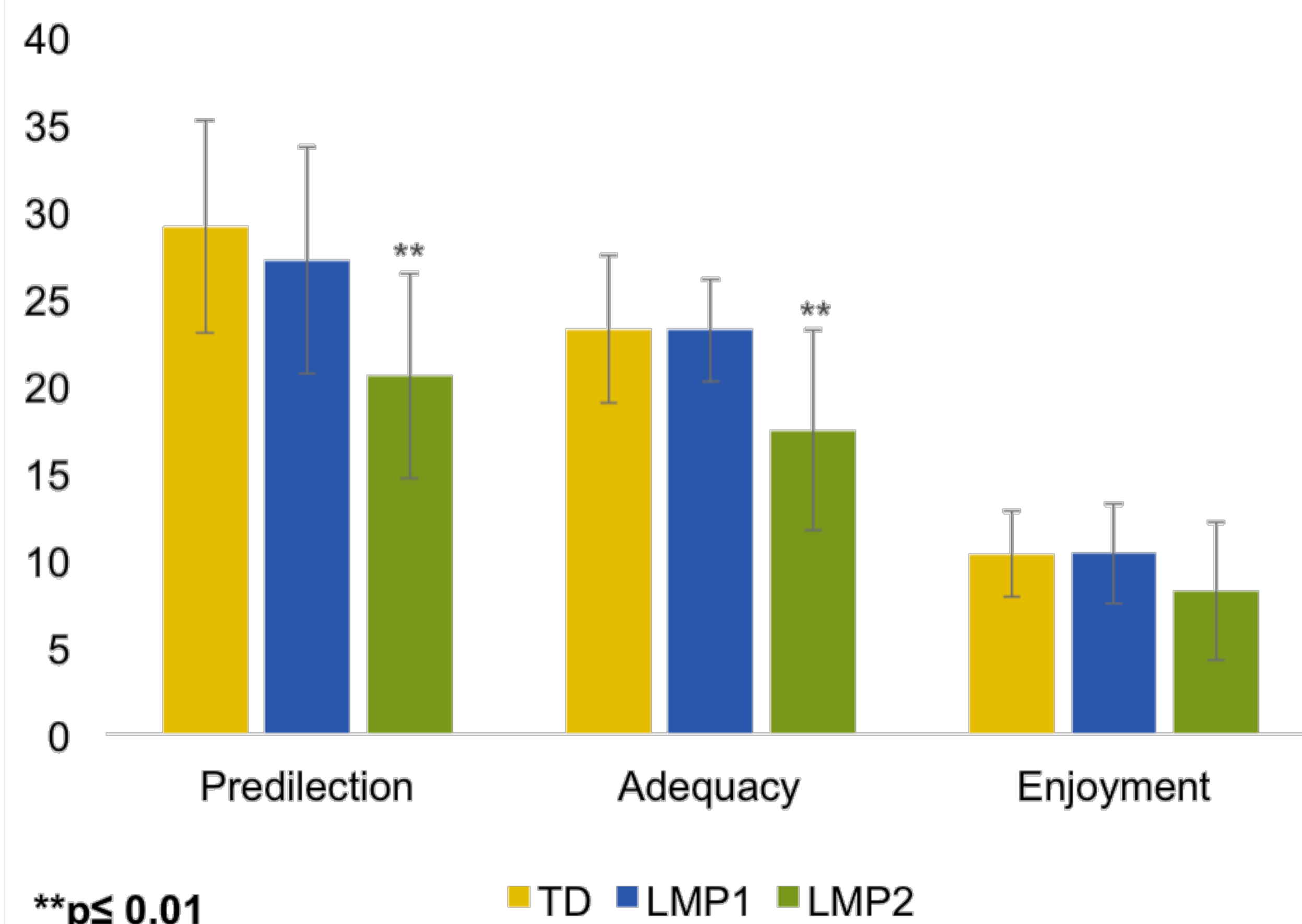
- Body composition: Dual energy x-ray absorptiometry scan
- Strength: Handgrip and 5-repetition maximum (5RM)
- Hypermobility: Beighton score
- Physical activity: Actigraph GT3x accelerometers
- Peak aerobic capacity (VO_{2peak}): incremental treadmill protocol using a Cosmed K42b portable analyser
- Children's Self-perceptions of Adequacy in and Predilection for Physical Activity scale (CSAPPA)⁵



RESULTS - Between Groups

- Total 5RM score differed significantly between groups (F(2,61)=7.595, p<0.01), with TD children stronger than those with LMP1 (p=0.021) and LMP2 (p<0.05).
- Moderate to vigorous physical activity (F(2,59)=3.747, p<0.05), and aerobic fitness (F(2,61)=3.312, p<0.05) scores significantly higher in TD compared to the LMP2 group.
- Predilection (F(2,61)=12.741, p<0.001) and Adequacy (F(2,45.455)=12.260, p<0.001) were significantly higher in TD compared to LMP2 group.
- No other significant difference between groups was found.

Mean Generalised Self-efficacy Scores

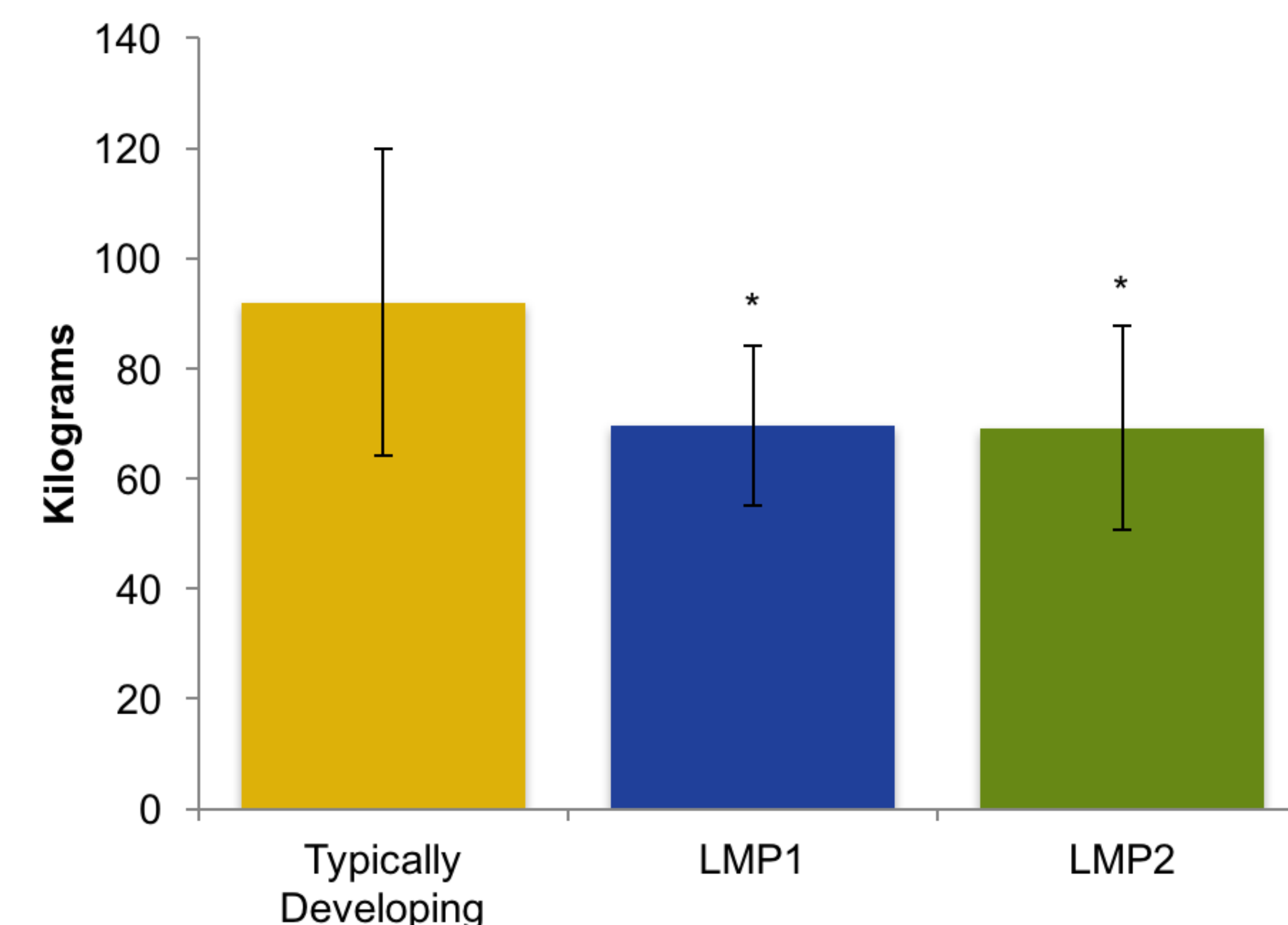


**p ≤ 0.01

RESULTS - Correlations

- Movement proficiency was found to correlate moderately with total 5RM score (r=0.500, p<0.01), the CSAPPA sub scores of Predilection (r=0.543, p<0.01), and Adequacy (r=0.467, p<0.01).
- Physical activity correlated moderately with total 5RM (r=0.424, p<0.01).
- No significant correlations were found in all other outcome measures

Mean Total Muscle Strength Scores



*p ≤ 0.05

DISCUSSION

- Children with significant movement difficulties (LMP2) differ significantly from TD children in both physiological function and measures of generalised self-efficacy.
- These results demonstrate at most a moderate relationship between outcome measures suggesting physical activity, muscular strength and self efficacy are independent constructs. Therefore interventions should target each domain independently.
- Future research will look to assess and implement effective ways of improving the deficits seen in multiple outcome variables, to ultimately improve children with low movement proficiency's ability to engagement in physical activity.

KEY REFERENCES:

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