

## **ORAL: MOTOR COMPETENCE AND MVPA: SPURIOUS ASSOCIATIONS FROM INAPPROPRIATE ANALYSES**

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**Objective:** To examine whether the school-day and 24-h physical behaviour composition is associated with motor competence (MC); and to investigate predicted differences in MC when a fixed duration of time is reallocated from one physical behaviour to another in preschool children  
**Method:** 24-h physical behaviours, including sleep, sedentary time, light physical activity (LPA), and moderate-to-vigorous PA (MVPA), anthropometrics, and MC, using the TGMD-2, were collected in 204 preschool children. The association between all physical behaviours in the school-day and 24-h period, respectively, were investigated independently and collectively with MC. Traditional and compositional and isotemporal reallocation analyses were conducted.

**Results:** When physical behaviours were examined independently, MVPA did not predict MC, as part of the school-day or 24-h period. When data were considered as a school-day or 24-h composition, adjusted for age, BMI, and sex, the composition significantly predicted locomotor, object, and total MC, respectively (all  $P < 0.001$ ). For the 24-h period; reallocation of time from light PA to MVPA was associated with the greatest positive changes in total MC. For the school-day; reallocation of time from LPA to sedentary time was associated with modest improvements in manipulative skills only. **Implications:** Researchers, practitioners, and any key stakeholders are strongly encouraged to consider the composition of physical behaviours, with regard to MC. Traditional analysis of physical behaviour data is statistically inappropriate. Indeed, disregarding the compositional nature of physical behaviours will likely result in spurious associations, inappropriate inferences, and/or missed opportunities.