

## **Development of Adolescents' Moderate-to-Vigorous Physical Activity and Cardiorespiratory Fitness in Motor Competence Profiles over Four Years.**

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### **Introduction**

Today majority of adolescents do not meet the current physical activity (PA) recommendations and thus do not have adequate levels of cardiorespiratory fitness, which contributes to their cardiometabolic health (Lang et al., 2018). Motor competence is the foundation for physically active lifestyle, but not all children reach the same level of motor competence (Coppens et al., 2019). Thus, this study aimed to identify subgroups of children based on their motor competence and to study developmental trajectories of PA and cardiorespiratory fitness in each subgroup over four years.

### **Method**

In this follow-up study (N=1147; M age at baseline=11.27±0.32) the measurements of motor competence, device-measured moderate-to-vigorous PA (MVPA) and cardiorespiratory fitness were collected annually over five consecutive years. Latent profile analysis was used to identify motor competence profiles and latent growth curve modeling to study developmental trajectories of MVPA and cardiorespiratory fitness in each profile over four years.

### **Results**

Three different motor competence profiles were identified: low, moderate, and high. The high-profile had the highest level of MVPA, but it also showed a significant decrease in MVPA over time. All profiles showed a significant increase in cardiorespiratory fitness over time. However, the rate of change was largest in the high-profile.

### **Discussion**

This study highlights the role of motor competence on the level of MVPA and on the development of cardiorespiratory fitness. Although previous studies have shown that children with poor motor competence or low fitness are unlikely to reach their peers

with age, this study reveals increasing polarization of cardiorespiratory fitness in adolescents with different levels of motor competence.

## References

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