# Physical Activity Levels during Dutch Primary and Secondary School Physical Education

***Slingerland, M., Oomen, J.M., Borghouts, L.B.***
*Fontys University of Applied Sciences, Institute of Human Movement and Sports,*
*Physical Activity and Health Research Group, Tilburg, The Netherlands*

## Background & Purpose

If substantial amounts of physical education (PE) lesson time are spent in moderate-to-vigorous physical activity (MVPA), then PE could make a meaningful contribution to physical activity levels in children and adolescents (Fairclough & Stratton, 2005), especially for the least active populations.
In the Netherlands however, the intensity of PE lessons has never been investigated. Therefore the purpose of this study was:

- To assess MVPA engagement in regular (non-intensified) Dutch primary and secondary school PE lessons
- To determine the influence of various lesson characteristics on students' activity levels during PE

## Methods

- Heart rate monitoring using the Polar Team System
- 913 students (461 primary, 452 secondary) in 20 schools (10 primary, 10 secondary), throughout the Netherlands
- Grades 4,5 and 6 (9-12 yrs) and grades 8,10 and 12 (13-18 yrs)
- 10 students were measured per PE lesson (5 boys, 5 girls)
- MVPA defined as > 50% HRR

## Results

**Overall**
Primary school students were more active during PE than secondary school students: MVPA 46.7% vs. 40.1% of total lesson time (p<.001). Also, secondary school boys were more active during PE than secondary school girls: MVPA 43.2% vs. 36.6% (p<.01, see figure 1)

Net lesson time was 39.55 minutes in primary school and 57.07 in secondary school. In both primary and secondary school ≈ 20% of scheduled lesson time was lost due to changing clothes and transportation to sport facilities.

**Lesson Characteristics**
An interaction effect was found for gender x lesson content in secondary school students (p<.001), where boys spent more time in MVPA during teamgames than girls: MVPA 45.7% vs. 34.7% (see figure. 2)

No effects where found for class size, available space per student and for teacher type (specialized vs. classroom, in primary school).

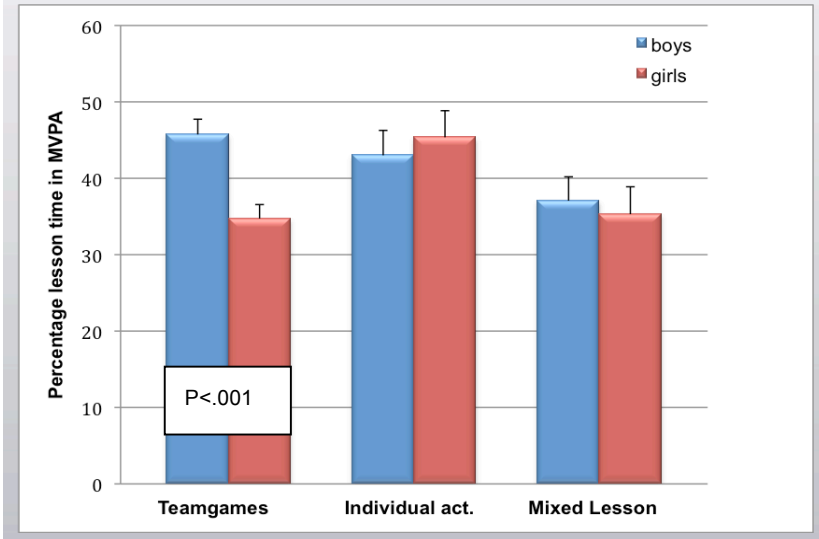


**Figure 2** – *Means and standard errors for percentage lesson time for secondary school boys and girls in teamgames, individual activities and mixed lessons.*

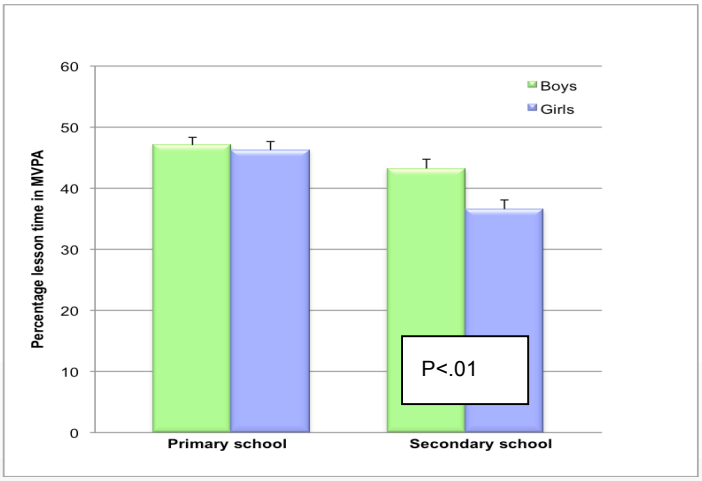


**Figure 1** – *Means and standard errors for percentage lesson time in MVPA for primary and secondary school PE*

## Discussion

Primary school students engaged in more MVPA relative to lesson time**.** Absolute MVPA values were 18.34 minutes in primary school and 21.44 minutes in secondary school**.**
Consequently, the contribution of PE to the PA-guideline for youth is roughly 1/3 of the prescribed daily hour of physical activity.

**Gender effect**
The steep decline and lower MVPA engagement for girls in secondary school PE is probably due to the high prevalence of competitive team-games in secondary school PE-curricula. Boys, generally having higher fitness levels and better motor skills, tend to dominate these activities. This is problematic, as substantial time in the Dutch secondary school PE curricula is allocated to competitive team games. This could result in feelings of incompetency and disappointment and ultimately in an aversion to certain PE activities or PE as a whole.

## Practical Recommendations

- Allocated lesson time for PE should be used more efficiently to increase net lesson time (i.e. reducing transport time to sport facilities, more efficient organisation of lesson commencement).
- Secondary school PE curricula need to be re-evaluated to adapt more to girls' specific interests (i.e. more non-competitive individual activities)
- PE-lessons are valuable sources of physical activity; therefore intensified lesson strategies should be developed for a wide range of PE-activities in order to maximize lesson intensity without compromising other PE objectives.
- More curricular time for PE in combination with intensified lessons might be a promising strategy to increase physical activity in Dutch students, especially the least active.

**For more information: m.slingerland@fontys.nl**

Fairclough, S., & Stratton, G. (2005). 'Physical education makes you fit and healthy'. Physical education's contribution to young people's physical activity levels. *Health Education Research, 20*(1), 14-23