combined accelerometry and heart rate monitoring, using the physical activity monitoring device *ActiHeart* (Cambridge Neurotechnology Ltd., Papworth, Cambridge, UK). The *ActiHeart* device objectively and validly measures PALs (Crouter, Churilla, & Bassett, 2008), and has been validated and proven a feasible instrument in the target population of school-aged children and adolescents (Butte et al., 2010; Corder, Brage, Wareham, & Ekelund, 2007; Slingerland, Oomen, & Borghouts, 2011).

26 ninth grade school students (*M*=15.28 years, *SD*=.47) of a German secondary school took part in the study. They wore the *Actiheart* the whole day for one week, including weekend and except for sleep. All students followed the same school schedule and participated in the same classes.

The *ActiHeart* device was attached to participants via two ECG electrodes on the chest (Figure 1). The *ActiHearts*were set to record heart rate in short-term recording mode continuously over 30-seconds epochs. Recorded data was analyzed using *ActiHeart* software (Version 4.032, Cambridge Neurotechnology Ltd., Papworth, Cambridge, UK).

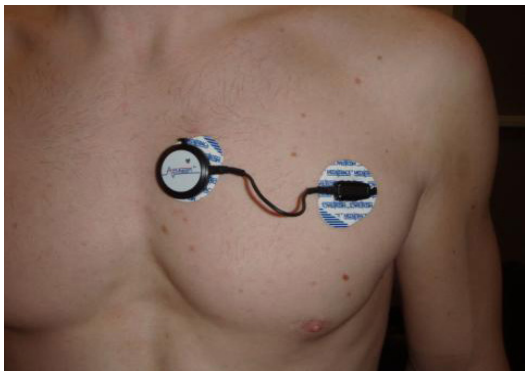

Figure 1. ActiHeartset-up (Crawlea, 2003)

RESULTS

Table 1. PALs (MET) for time spend in school (school time), way to school (transportation), class time, recess time, leisure time, school week, and weekend

Activity category	M	SD
Time spend in school (school time)	1.68 [a]	.2
Way to school (transportation)	2.8 [a]	.49
Recess time	2.4 [b]	.36
Class time	1.58 [b]	.17
Leisure time	1.94	.17
School week	1.86 [c]	.21
Weekend	1.7 [c]	.28

Note. *N*=26. Means with same subscripts are significantly different at the *p*<.01. Means with same superscripts are significantly different at the *p*<.05.

The way to school (transportation) significantly (*p*<.01) adds above-average school time PALs (*M*= 2.8 MET, *SD*=.49), although, active transportation was not common for the German sample. However, active transportation did not accumulate higher amounts and levels of physical activity compared to passive transportation.

Students showed significantly (*p*<.01) higher

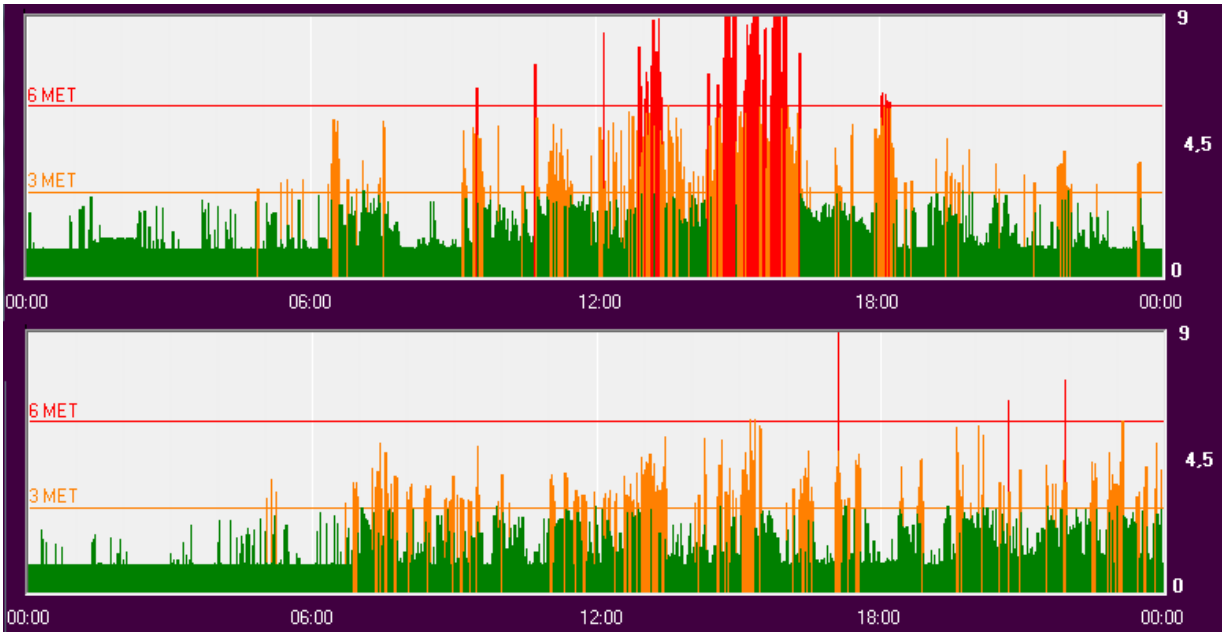

Figure 2. PALs for days with PE (top) to days without PE (bottom)

amounts of physical activity during recess time (*M*=2.4, *SD*=.36) as compared to mere class time (*M*=1.58 MET, *SD*=.17). Leisure time PALs (*M*=1.94 MET, *SD*=.17) were slightly higher compared to school time PALs (*M*= 1.68, *SD*=.2), but do not show a statistically significant difference.

Students showed significantly ($p<.05$) lower PALs during the weekend (*M*=1.7 MET, *SD*=.28) than during the school week from Monday to Friday (*M*=1.86 MET, *SD*=.21). Students' PALs for time spend in school (school time), school way (transportation), class time, recess time, leisure time, school week, and weekend are shown in Table 1.

According to Total Energy Expenditure (TEE), days with PE lessons (*M*=2444 kcal, *SD*=525) reached significantly ($p<.01$) higher PALs compared to school days without PE (*M*=2173, *SD*=625) (Figure 2).

Compared to the report of the Expert Consultation of Human Energy Requirements (ECHER, 2004), the vast majority of the students (*N*=21) showed amoderately to vigorously active lifestyle for the assessed whole week.

CONCLUSION

School as an institution that has a major effect on children'sand adolescents' lifestyle, including physical activity patterns. It "simply" plays asignificantly influencing role in the daily routine of students. It also serves as a main socializing agent and socializing environment, especially in terms of exposure to physical activity.

This study's results confirm that school is an important source for overall physical activity, thereby providing significant PALs in adolescents.The next step from a research standpoint would be planning and implementing programs that increase the amount and level of physical activity during the school day. This study's findings indicate that school should be a focus point in physical activity interventions, also and "naturally" including PE (Kretschmann, 2012; Slingerland & Borghouts, 2011; Stratton et al., 2008).

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Correspondence:
Rolf Kretschmann
University of Dortmund
Department of Sports and Sports Science
Otto-Hahn-Str. 3, 44227 Dortmund, Germany
E-mail: rolf.kretschmann@uni-dortmund.de