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Article Title: Extracurricular School-Based Sports as a Stepping Stone Towards an Active Lifestyle? Differences in Physical Activity and Sports-Motivation Between Extracurricular School-Based Sports Participants and Non-Participants

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Abstract

Purpose: The goals were to investigate whether extracurricular school-based sports reach students not engaging in community sports and whether extracurricular school-based sports participants are more physically active and/or autonomously motivated towards sports than non-participants. **Method:** 1526 students (48.0% boys; 85.9% Belgian natives; age=15.34 ±1.83y) completed validated questionnaires to assess sports participation, physical activity (PA) and sports-motivation. Multilevel regression analyses were conducted. **Results:** Only 28.7% of all students (n=438), and 19.7% of students not engaging in community sports (n=123), participated in extracurricular school-based sports. Participants are significantly more physically active [β=44.19, S.E.=17.34, $\chi 2(1)$=6.50, p=.01] and autonomously motivated [β=.18, S.E.=.04, $\chi 2(1)$=25.62, p<.001] than non-participants, even after controlling for community sports participation. Boys were more physically active and autonomously motivated than girls (p<0.001). **Conclusion:** As participation is linked to higher PA-levels and autonomous motivation, increasing overall participation rates may contribute to children developing a more physically active lifestyle and achieving the PA guidelines.

Keywords: Self-Determination Theory, school sports, motivation, physical activity, adolescent

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Despite ubiquitous evidence that regular physical activity (PA) and sports participation during adolescence have a positive impact on physical, psychological and social health (Janssen & LeBlanc, 2010), a global trend of increasing inactivity among adolescents has manifested over the last decade (Hallal et al., 2012). Moreover, research shows that participation in youth sports has declined significantly and withdrawal from sports participation is at its highest level during the onset of adolescence (Petlichkoff, 1996; Sirard, Pfeiffer, & Pate, 2006). The latter is troubling because sports participation is essential for the promotion of PA (Sirard et al., 2006) and can contribute to meeting adolescents' daily recommendations of sixty minutes or more moderate-to-vigorous PA (World Health Organization, 2014). One possible strategy to respond to this negative trend is to organize accessible PA and sports opportunities for adolescents. In most countries adolescents of all socioeconomic backgrounds attend school, the school environment is thus considered to be an ideal setting to offer such opportunities. The large majority of schools also has trained personnel, equipment and facilities to provide PA and sports opportunities (McKenzie & Kahan, 2008; Pate & O'Neill, 2009). Next to physical education (PE), extracurricular school-based sports provide excellent sports participation opportunities for many adolescents, especially those from economically disadvantaged backgrounds (Edwards, Bocarro, & Kanters, 2013) as this type of sports is usually easily accessible in terms of location and costs. Engaging in sports in a familiar and safe environment in the presence of class- and schoolmates also makes it an attractive alternative for community sports (i.e., organized sports within the community, primarily provided by sports clubs or other local organizations).

Extracurricular school-based sports are defined as all sports in which students can voluntarily participate and that are not included in the curriculum but organized by or in

cooperation with the school (De Meester, Aelterman, Cardon, De Bourdeaudhuij, & Haerens, 2014). They involve both interscholastic sports and intramural sports, each having their own specific focus and target population. Interscholastic sports are by their very nature designed to include only the most sports-talented students, and in some countries such as the United States (U.S.) they are more valued by schools and communities and therefore more frequently organized than intramural sports (Park, 2007; Bocarro, Kanters, Casper, & Forrester, 2008). Intramural sports programs are typically organized to reach adolescents who are not participating in community sports in order to provide them with opportunities to explore individual skills and talents in a variety of activities (Pot & Van Hilvoorde, 2013). It forms a platform for students who want to be active, but may not have the skills to participate in interscholastic sports, or dislike the competitive nature of sports that are organized in the community (Wechsler, Devereaux, Davis, & Collins, 2000). In contrast to the U.S., European extracurricular school-based sports consist primarily of intramural sports. They specifically aim at reaching students who are not engaging in community sports (Pot & Van Hilvoorde, 2013) and/or students at risk for an inactive lifestyle (Wechsler et al., 2000).

Studies in the U.S. have assessed students' participation rates in extracurricular school-based sports with participation rates ranging from 31% (Cohen, Taylor, Zonta, Vestal, & Schuster, 2007) to 57% (Harrison & Narayan, 2003). Other studies in the U.S. furthermore demonstrated that the general PA offering at school (including PE) is proportional to students' activity levels (e.g., Sallis et al., 2003). In a retrospective study over a time period of 50 years, Dohle & Wansink (2013) even identified participation in high school sports as the single strongest predictor of American men's PA after the age of 70. Silva et al. (2010) also found that Portuguese adolescents

who participate in extracurricular school-based sports are more likely to achieve the PA guidelines. Extracurricular school-based sports participation furthermore provides opportunities for growth and development (Eccles & Gootman, 2002) and is associated with long-term psychological benefits such as academic and psychological adjustment, educational status, civic engagement and lower levels of social isolation (Barber, Eccles, & Stone, 2001; Fredricks & Eccles, 2006).

Despite the differences in contexts between the U.S. and Europe, little research has been conducted in a European setting to explore adolescents' participation rates in extracurricular school-based sports and to investigate whether these sports indeed contribute to an overall active lifestyle. Previous research among Belgian 5th and 6th grade elementary school children showed that 83% of the boys and 68% of the girls participate in extracurricular school-based sports, and that extracurricular school-based sports participants were significantly more physically active than their non-participating peers (De Meester et al., 2014). A recent study (Belton, Prior, Wickel, & Woods, 2016) found that 84% of Irish male adolescents (age 12-15 years) from disadvantaged schools regularly (≥ twice a week) or occasionally (once a week) participated in extra-curricular PA and that participants were significantly more physically active (steps/day) than non-participants. No other data on adolescents' extracurricular school-based sports participation rates and their PA levels are available. Thus, as research suggests that adolescence is a time where PA declines precipitously (Knuth & Hallel, 2009), it is important to understand the effectiveness of extracurricular school-based sports in terms of participation rates and PA.

Besides the possibility to promote PA engagement, extracurricular school-based sports participation might also affect students' motivation to participate in sports and their effort to engage in PA (Gao, Podlog, & Harrison, 2012). Kanters & Bocarro (2012) found that intramural

sports have the possibility of nurturing a positive attitude and a desire to continue playing sports among participants. In the present study, the framework of the Self-Determination Theory (SDT, Deci & Ryan, 2000) was used to approach the concept of motivation. This theory distinguishes between autonomous motivation, controlled motivation and amotivation. Autonomous motivation is considered to be the most optimal form of motivation and relates to the engagement in an activity for its own sake, out of interest or enjoyment or because the behavior has been brought into alignment with the individual's other values and ideals (Deci & Ryan, 2000). Controlled motivation refers to the internally or externally pressured engagement in an activity (Aelterman et al., 2012). Autonomous motivation and controlled motivation are contrasted with amotivation, which exists when people lack intentionality or engage in behaviors for unknown reasons (Deci & Ryan, 2000). As extracurricular school-based sports specifically aim at reaching students with low PA levels and little sports participation, it is important to investigate the link between extracurricular school-based sports participation and motivation to engage in sports in order to explore the potential to optimize the sports-promoting role of extracurricular school-based sports.

In summary, the aims of this study were threefold: the first aim was to investigate whether extracurricular school-based sports reach adolescents who are not engaging in community sports. Moreover, as little is known about the association between adolescents' extracurricular school-based sports participation and their PA, the second aim was to gain more insight in adolescents' PA levels and to investigate differences in PA between extracurricular school-based sports participants and non-participants. The third and final aim was to examine differences in motivation for sports between students participating and those not participating in extracurricular school-based sports.

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Methods

Participants and procedure

Principals of 43 randomly chosen secondary schools in Flanders (the Dutch-speaking, northern part of Belgium) with an extracurricular school-based sports offering were contacted to participate in the present study. One school was excluded because it no longer offered extracurricular school-based sports and ten principals from other contacted schools declined to participate. This resulted in a final sample of 32 schools. In each school, one class from the seventh/eighth grade, one from the ninth/tenth, and one from the eleventh through thirteenth were randomly selected.

All participating students and their parents received an information letter and with the exception of two students' parents, all parents consented to the participation of their child. In total, 1526 students (48.00% boys; 85.91% native Belgians and 14.09% non-native Belgians) with a mean age of 15.34 years (*SD* = 1.83, range 11-23 years) individually completed a set of questionnaires at school, in the presence of a supervisor. Before the start of the completion of the questionnaires, the accompanying researcher described the protocol to the students and explained that extracurricular school-based sports were defined as 'all sports in which students can voluntarily participate and that are not included in the curriculum but organized by or in cooperation with the school either during lunch break, during after-school hours or on Wednesday-afternoon (typically a free afternoon in Flemish schools).' The study protocol was approved by the Ethical Committee of Ghent University.

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Measures

Demographic variables. Demographic variables (ethnicity, sex, age, parents' occupation, parents' country of birth, and residence) were obtained through a number of questions at the beginning of the questionnaire such as whether both parents were born in Belgium or not (i.e. non-native Belgians had at least one parent born outside Belgium). Students were also asked to fill out their parents' occupation and were, based on the Four Factor Index of Social Status (Hollingshead, 1975), categorized in two socio-economic groups: low and medium SES (48.49%) and high SES (47.71%). Fifty-eight children (3.80%) did not fill out their parents' occupation.

Self-reported physical activity. PA levels were determined using the Flemish Physical Activity Questionnaire (FPAQ, Philippaerts et al., 2006). The FPAQ has been shown to be a reliable and valid instrument to assess different dimensions of PA in 12- to 18-year-old Flemish boys and girls (Philippaerts et al., 2006). The questionnaire (FPAQ) is composed of four parts: a) Intra-curricular PA (e.g., "How many hours of PE do you participate in per week?"), b) walking and cycling (e.g., "How much time do you usually spend cycling on a weekday?", not distinguishing between walking and cycling for active transportation and leisure time), c) extracurricular school-based sports participation (e.g., "How many hours of extracurricular school-based sports do you participate in per week") and d) non-school-based sports participation (both organized as well as unorganized sports). Sports participation was assessed by asking the participants to indicate the main sport(s) they engaged in (with a maximum of 3 sports). For each sport, adolescents had to report the frequency, the usual time spent on that sport and whether or not they practiced their sport(s) in a sports club (D'Hondt et al., 2012). Students' overall weekly PA was calculated by making the sum of the time (in minutes) spent in intra-curricular PA time,

time spent on walking and cycling, time spent in extracurricular school-based sports, and time spent in (non-school-based) sports participation.

Motivation for sports. An adapted version of the Dutch Behavioral Regulations in Physical Education Questionnaire (BRPEQ, Aelterman et al., 2012) was used to assess motivation for sports. The BRPEQ was validated in previous research in the context of PE (Aelterman et al., 2012) and is an adapted version of the BREQ-2 (Markland & Tobin, 2004). Similar to the original BREQ-2, the sports context was used to frame the items of the BRPEQ used in the current study. Sixteen items with the stem 'I participate in sports because…' were used to measure autonomous motivation (8 items, $\alpha = 0.93$; e.g., "I participate in sports because I find it a pleasurable activity.") and controlled motivation (8 items, $\alpha = 0.79$; e.g., "I participate in sports because I feel guilty if I don't."). Amotivation was measured by four items ($\alpha = 0.86$; e.g., "I don't see why I should bother participating in sports."). Participants responded to each of the twenty items via a 5-point Likert scale from 1 (*not at all true for me*) to 5 (*very true for me*).

Analyses

SPSS (version 21.0) was used for descriptives and to calculate participation rates (Aim 1). Given the hierarchical structure of the data, and the adequate sample size for conducting multilevel analyses (Maas & Hox, 2005), the IGLS estimation method in MLwiN (version 2.30) was used to conduct multilevel regression analyses to examine whether students participating in extracurricular school-based sports were more physically active in daily life (Aim 2) and better motivated to participate in sports (Aim 3) than non-participating students. First, a three-level null model (school, class, student) or intercept-only model including only the dependent variable was estimated for PA (null model 1), autonomous motivation (null model 2), controlled motivation (null model 3),

and amotivation (null model 4), respectively. These null models partitioned the total variance of the examined dependent variable into the between-student (Level 1), between-class (Level 2) and between-school (Level 3) variance and further served as a baseline with which explanatory models were compared. In the second step, age and SES were inserted in the models as covariates. Furthermore, all three types of motivation were entered as additional covariates in the model for PA (model 1a). Controlled motivation and amotivation were entered as additional covariates in the model with autonomous motivation as a dependent variable (model 2a). Similar strategies were followed for the two other motivation-models [autonomous motivation and amotivation as covariates in the model for controlled motivation (model 3a); autonomous and controlled motivation as covariates in the model for amotivation (model 4a)]. To compare these models with their respective intercept-only models, likelihood ratio tests were conducted. If a likelihood ratio test was statistically significant, the model with covariates was considered to be a better fit than the intercept-only model. In the third step, sex, extracurricular school-based sports participation and community sports participation were included as predictors in each of the models (models 1b, 2b, 3b and 4b) as dichotomous variables (sex: 0=boy, 1=girl; extracurricular school-based sports participation: 0=no participation, 1= participation; participation in community sports: 0=no participation , 1=participation). In the same model, we also explored the two-way interaction effects between each of these three predictors and the three-way interaction effect. In the final step, only statistically significant predictors ameliorating each of the models were retained, resulting in the most parsimonious and interpretable models. Since none of the interaction-effects were significant, the most parsimonious model for all variables only included the covariates and the

three main effects as predictor (models 1c, 2c, 3c and 4c). The level of significance was for all statistical analyses defined as lower than .05.

Results

Aim 1: Extracurricular school-based sports participation in relation to community sports participation and sex

The majority of students (71.30%, n=1088) stated that they did not participate in any of the extracurricular school-based sports. A little over a quarter of the students (28.70%, n=488) reported participation during the current school year with an average of 112 minutes per week. Extracurricular school-based sports reached 19.74% of the adolescents not engaging in community sports (*n*=123, 8.06% of the total sample) and participation in extracurricular school-based sports significantly differed by grade [$\chi^2(1)=11.81$, $p=.003$]. Participation was reported by 34.32% of students from the 7th and 8th grade (*n*=175), 26.08% from the 9th and 10th grade (*n*=151), and 25.63% from the 11th-13th grade (*n*=112). Despite the significant difference in participation rates between grades, no significant grade difference was found for average time spent in extracurricular school-based sports. About one third of the students (35.62%) spent more than three hours per week in extracurricular school-based sports, while 19.63% engaged in extracurricular school-based sports for one to two hours weekly, the remaining 44.75% of the students spent less than one hour per week in extracurricular school-based sports**.** A significantly positive relationship was found between extracurricular school-based sports participation and community sports participation [$\chi^2(1)=41.93$, $p<.001$] with 71.92% (n=315) of all extracurricular school-based sports participants (20.64% of the total sample) participating in community sports (Table 1).

Participation in extracurricular school-based sports significantly differed by sex [$\chi^2(1)=34.56$, $p<.001$]. As shown in Table 2, participation was reported by 35.79% of the boys ($n=262$) and 22.17% of the girls ($n=176$). A little over one quarter of the participating girls (27.84% or 3.21% of the total sample) and 40.84% of the participating boys (7.01% of the total sample) spent more than two hours per week in extracurricular school-based sports, while 17.04% of the participating girls (1.97% of the total sample) and 21.37% of the participating boys (3.67% of the total sample) engaged in extracurricular school-based sports for between one and two hours weekly. The remaining 55.11% of the participating girls (6.36% of the total sample) and 37.79% of the participating boys (6.49% of the total sample) spent less than one hour per week in extracurricular school-based sports.

Five sports were found to be organized by more than half of the participating schools: soccer (in 90.63% of the participating schools), basketball (68.75%), badminton (65.63%), volleyball (56.25%) and table tennis (50.00%). Other regularly organized sports were swimming (46.88%), track and field (40.63%), fitness (31.25%), netball (28.13%), dance and hockey (each 21.88%), and tennis (18.75%) while some sports were only offered by a minority of the schools: handball and squash (15.63%), gymnastics (12.50%), cycling (9.38%), baseball, krachtball, judo, skating and wall climbing (each 6.25%) and korfball, rugby, karate, taekwondo, rope skipping and horse-riding (each 3.13%)

Aim 2: Self-reported Physical Activity according to participation in extracurricular school-based sports

To examine if students participating in extracurricular school-based sports and/or community sports were more or less physically active than their non-participating peers, a three-

level model was estimated for weekly-based PA (see Table 3). Variance at school-level [4.19%, $\chi^2(1)=5.10$, $p=.024$] and at student-level [93.42%, $\chi^2(1)=710.63$, $p<.001$] was significantly different from zero. Of all the included covariates, autonomous motivation [β=138.07, *S.E.*=11.68, $\chi^2(1)=139.78$, $p<.001$] and controlled motivation [β=32.70, *S.E.*=15.58, $\chi^2(1)=7.10$, $p=.008$] were found to be significantly positively related to pupils' PA levels. As shown in Table 3 (Model 1c), girls were significantly less physically active than boys [β=-82.05, *S.E.*=16.34, $\chi^2(1)=25.21$, $p<.001$ After controlling for age, SES, motivation, sex, and community sports participation, extracurricular school-based sports participants were found to be significantly more physically active than non-participants [β=44.19, *S.E.*=17.34, $\chi^2(1)=6.50$, $p=.01$]. Similarly, students participating in community sports were significantly more physically active [β=155.36, S.E.=17.65, $\chi2(1)=77.46$, $p<.001$] than students who were not participating in community sports.

Aim 3. Motivation for sports according to participation in extracurricular school-based sports

Autonomous Motivation. In the null model for autonomous motivation, the student-level variance [89.64%, $\chi^2(1)=710.02$, $p<.001$] largely exceeded the class-level variance [7.45%, $\chi^2(1)=9.70$, $p=.002$]. Boys were found to be significantly more autonomously motivated for sports than girls [β=-.17, *S.E.*=.03, $\chi^2(1)=27.75$, $p<.001$]. The results also showed that students participating in extracurricular school-based sports [β=.18, *S.E.*=.04, $\chi^2(1)=25.62$, $p<.001$] and community sports [β=.49, S.E.=.04, $\chi2(1)=192.88$, $p<.001$] were more autonomously motivated than the reference category (Table 4).

Controlled Motivation. The random parts of the null model for controlled motivation showed that only the variance at the pupil-level differs significantly from zero [98.51%,

$\chi^2(1)=713.33$, $p<.001$]. As can be seen in Table 5, no significant main and/or interaction effects were found between sex, participation in extracurricular school-based sports, participation in community sports and controlled motivation for sports.

Amotivation. The variances at class- and the student-level differed significantly from zero with the student-level variance [93.04%, $\chi^2(1)=710.94$, $p<.001$] largely exceeding the class-level variance [4.30%, $\chi^2(1)=5.36$, $p=.021$, Table 6]. Extracurricular school-based sports participants did not differ in amotivation from non-participants [β=.04, S.E.=.04, $\chi2(1)=1.54$, p=.22]. However, students participating in community sports displayed, compared to those not participating in community sports, significantly lower amotivation [β=-.09, S.E.=.04, $\chi2(1)=5.50$, p=.02]. Furthermore, girls were found to be significantly less amotivated than boys [β=-.61, *S.E.*=.02, $\chi^2(1)=9.79$, $p=.002$].

Discussion

In contrast to the U.S., European extracurricular school-based sports consist primarily of intramural sports. They specifically aim at reaching students who are not engaging in community sports (Pot & Van Hilvoorde, 2013) and/or students at risk for an inactive lifestyle (Wechsler et al., 2000). Adolescents form an important target population, as early adolescence is characterized by a general decrease in PA and sports participation (Sirard et al., 2006; Knuth & Hallel, 2009). Moreover, studies (e.g., Roberts, 2006) have found that by the age of 16 most adolescents have adopted a pattern of leisure activities and sports participation that forms the foundation of their adult leisure lifestyle, further emphasizing the importance of searching for ways to stimulate this group to become more active. The results of this study revealed overall low participation rates in extracurricular school-based sports among adolescents, with only slightly over one quarter of all

students, and less than one out of five students who are not engaging in community sports, participating in extracurricular school-based sports. These results indicate that a major objective of extracurricular school-based sports, namely reaching students who do not engage in community sports (Pot & Van Hilvoorde, 2013), is currently insufficiently achieved. The low participation rates stand in stark contrast to the high participation rates (76%) that were found among Flemish fifth and sixth grade elementary school children (De Meester et al., 2014), suggesting a strong decline in participation that coincides with the transition from elementary school towards secondary school, or from childhood to adolescence. Considering the small age difference between children from the last two grades of elementary school (5^{th}-6^{th} grade) and adolescents from the first two grades of secondary school (7^{th}-8^{th} grade), the considerable difference in participation rates between both groups suggests that the school context might have an influence on extracurricular school-based sports participation. Elementary schools typically have a limited number of classes per grade and have a more personal, friendly atmosphere than the larger secondary schools (Pratt & George, 2005). In Flanders (Belgium) elementary school children are also often personally addressed by their class or PE teacher to participate in one of the activities, as one and the same teacher is teaching the class for the entire school year. In Flemish secondary schools, PE teachers only have one or two contact moments with their students, making it harder to actively stimulate them to participate. A more personal, motivating approach may contribute to higher participation rates among secondary school students, an issue that warrants further investigation. It is furthermore remarkable that the participation rates obtained in the current study were lower than those found in several studies among similar age groups in the U.S. (Cohen et al., 2007; Harrison & Narayan, 2003) and Ireland (Belton et al., 2016). In this perspective, it must be

noted that in Flanders community sports teams, and not schools, are the main providers of organized sports for adolescents. Extracurricular school-based sports are currently available in only 35% of Flemish secondary schools (Van Acker et al., 2011). Encouraging schools without an extracurricular school-based sports program to implement such programs, could significantly contribute to higher national participation rates.

Despite the overall low participation rates, most adolescents who do participate in extracurricular school-based sports do so on a regular basis and were found to be more physically active in daily life than their non-participating peers. These findings are in line with the findings of previous studies (Dzewaltowski et al., 2010; Gutin, Yin, Johnson, & Barbeau, 2008) and may indicate that for those who continue to participate throughout their school years, extracurricular school-based sports are a permanent part of their regular sports and PA routine. These results are promising since participants' weekly additional PA time is comparable to the PA increases as a result of some of the most successful PA interventions in young adolescents (Salmon, Ball, Hume, Booth, & Crawford, 2008). On the other hand, it is also possible that the current extracurricular school-based sports offering attracts those students that are more inclined to be active.

The final aim of the present study was to investigate whether extracurricular school-based sports participants differ from their non-participating peers in terms of motivation for sports. It is known from previous research that a more optimal form of motivation is linked to higher overall PA levels and a continued participation in PA activities (Chatzisarantis & Hagger, 2009; Kwan, Hooper, Magnan, & Bryan, 2011). In the context of meeting the health recommendations of 60 minutes or more moderate-to-vigorous PA per day, it is important to understand how participation in extracurricular school-based sports relates to motivation for sports. The results demonstrated

that participants have higher levels of autonomous motivation in comparison with their non-participating counterparts. Both groups of students did not differ with regard to controlled motivation or amotivation. The differences in autonomous motivation between participants and non-participants could indicate that extracurricular school-based sports mainly attract students with the highest levels of autonomous motivation, but it could likewise be possible that participation in extracurricular sports increases students' levels of autonomous motivation for sports. The possibility exists that students increasingly appreciate sports activities and develop a positive attitude toward sports through participation in extracurricular school-based sports (Kanters & Bocarro, 2012).

The results also showed that students' autonomous motivation for sports is generally much higher than their amotivation. This suggests that, despite declining participation rates in extracurricular school-based sports and community sports, secondary school students still display good quality of motivation for sports. The results furthermore indicated that adolescents' levels of autonomous motivation varied at the class level suggesting that class-related factors may influence students' autonomous motivation for sports.

Practical implications

Secondary school students' participation rates in extracurricular school-based sports are overall low and certain sub-groups, such as girls and students who are not active in community sports, insufficiently find their way to extracurricular school-based sports. The question therefore arises how adolescents, and more specifically girls and adolescents who are not engaging in community sports, can be stimulated and motivated to engage in extracurricular school-based sports. As extracurricular school-based sports programs can help students to develop or refine their

skills in a variety of sports activities and thus facilitate a lifelong adherence to sport and PA (Bocarro et al., 2008), it is crucial to reach as many students as possible.

One possible strategy to obtain this goal would be to better adapt the existing extracurricular school-based sports programs to the needs of both target groups described above so that these programs become more attractive and accessible to girls and adolescents not engaging in community sports. Most extracurricular school-based sports programs in Flemish secondary schools mainly offer traditional team sports (e.g., soccer, basketball and volleyball) while only a few of the programs include more recreational sports (e.g., fitness, dance and skating). The current extracurricular school-based sports programs are, therefore, more consistent with the existing hierarchy in sports popularity among Flemish adolescents, which is an ambiguous finding: on the one hand the availability of current sport programs reflect sports interests of the largest group of students, but on the other hand extracurricular school-based sports aim at reaching those students who are typically not attracted to the popular (community) sports offerings (Pot & Van Hilvoorde, 2013). Due to these similar offerings in both extracurricular school-based sports and community sports, the at risk students are being left in the lurch. The emphasis on traditional team sports can also be found in other countries such as England, Wales (Penney & Harris, 2007) and the U.S. (Kanters, Bocarro, Edwards, Casper, & Floyd, 2013). Adapting the current existing programs by adding more recreational sports could result in higher participation rates, especially among girls and students who are not attracted to community sports. Further research is needed to investigate whether it would be possible to increase participation rates in secondary school by offering various types of sport, and enhancing the announcement and promotion of the activities, and to examine how these adjustments would affect the opportunities for promoting overall engagement in PA.

Students participating in extracurricular school-based sports are more likely to meet the health-related recommendations of 60 minutes or more moderate-to-vigorous PA per day (67.7%) than their non-participating peers (52.0%). As previous studies suggest that PA related habits are tracking into adulthood (De Bourdeaudhuij, Sallis, & Vandelanotte, 2002; Telama et al., 2005), extracurricular school-based sports participation may not only contribute to a physically active lifestyle in the short-term but also in the long-term. However, despite the fact that participants engage in an additional moment of PA during extracurricular school-based sports participation, they are not necessarily more physically active than their peers outside the extracurricular school-based sports context. It is therefore recommended to facilitate adolescents' transfer for sports and PA participation in leisure time outside the school environment. Students who participate in extracurricular school-based sports were also found to have higher levels of autonomous motivation for sports than their non-participating counterparts. Extracurricular school-based sports could therefore be an excellent forum for students to acquire new skills and to develop a positive attitude toward sports and accordingly obtain a better quality of motivation for sports.

Strengths and Limitations

A first limitation of the present study is its cross-sectional design, which makes it impossible to determine the direction of the relationship between extracurricular school-based sports participation and both PA and motivation for sports. Conducting a longitudinal study would be one possibility to determine whether participation in extracurricular school-based sports triggers a more active lifestyle and a more autonomous motivation for sports or whether it is vice versa and students who already have high levels of PA and autonomous motivation are more attracted to extracurricular school-based sports than their peers. More clarity on the direction of the

relationships that were found in the present study could be provided by implementing extracurricular school-based sports programs in secondary schools that do, to date, not yet offer such programs. A second limitation is the possibility of over- or underestimation of certain variables (e.g., the weekly PA). Given the large sample size it was decided to use questionnaires validated for the target population (concurrent validity: r = .43 - .78 with respect to accelerometer data, Philippaerts et al., 2006), to assess PA instead of more objective measurements such as accelerometers.

The present study also has some considerable strengths. The first strength is the sample size (*N*=1526), obtained from 96 classes from 32 secondary schools, randomly selected from urban, suburban and rural areas. This large sample allowed us to presume that the results of the current study are representative for all Flemish students attending secondary schools with extracurricular school-based sports offerings. Another strength is the use of multilevel regression analyses to analyze the hierarchical data. With regard to the specific content and the availability of the offerings, extracurricular school-based sports can vary at school-level. By employing multilevel analyses, this variance was automatically taken into account.

Conclusions

Despite school being considered as a perfect channel for promoting sports participation and PA, the results of the current study indicate that only a minority of students who are not active in community sports do participate in extracurricular school-based sports. Moreover, participation rates among community sports participants are low as well. These generally low participation rates are in contrast to the high participation rates that were previously found among elementary school pupils. The apparent decline in participation during the transition from elementary school towards

secondary school, leads to the question which contextual factors explain these declines so that effective interventions can be designed. If more students would participate in extracurricular school-based sports, it is possible that more of them would meet the health-related PA recommendations and develop a more autonomous motivation for sports.

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Table 1: Cross tabulation extracurricular school-based sports and community sports

		No extracurricular school-based sports participation	Extracurricular school-based sports participation	Total
No community sports participation	n	*500*	*123*	*623*
	% within community sports	80.26%	19.74%	100.00%
	% within extracurricular school-based sports	45.96 %	28.08%	40.83%
	% of total	32.77%	8.06%	40.83%
Community sports participation	n	*588*	*315*	*903*
	% within community sports	65.12%	34.88%	100.00%
	% within extracurricular school-based sports	54.04%	71.92%	59.77%
	% of total	38.53%	20.64%	59.77%
Total	n	*1088*	*438*	*1526*
	% within community sports	71.30%	28.70%	100.00%
	% within extracurricular school-based sports	100.00%	100.00%	100.00%
	% of total	71.30%	28.70%	100.00%

Table 2: Cross tabulation extracurricular school-based sports and sex

		No extracurricular school-based sports participation	Extracurricular school-based sports participation	Total
Boys	n	*470*	*262*	*732*
	% within sex	64.21%	35.79%	100.00%
	% within extracurricular school-based sports	43.20%	59.82%	47.97%
	% of Total	30.80%	17.17%	47.97%
Girls	n	*618*	*176*	*794*
	% within sex	77.83%	22.17%	100.00%
	% within extracurricular school-based sports	56.80%	40.18%	52.03%
	% of Total	40.50%	11.53%	52.03%
Total	n	*1088*	*438*	*1526*
	% within sex	71.30%	28.70%	100.00%
	% within extracurricular school-based sports	100.00%	100.00%	100.00%
	% of Total	71.30%	28.70%	100.00%

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Table 3: Relationship between sex, extracurricular school-based sports participation, community sports participation and physical activity

	Weekly self-reported physical activity (Model 1, min/week)			
Parameter	Null model 1	Model 1a	Model 1b	Model 1c
Fixed part				
Intercept	528.32 (15.36)	524.40 (15.58)	459.17 (26.38)	467.94 (21.27)
Age		2.03 (4.82)	6.80 (4.67)	6.73 (4.70)
SES (high)[a]		13.41 (16.09)	5.68 (15.56)	5.15 (15.52)
Autonomous motivation		138.07 (11.68)***	85.89 (12.29)***	85.40 (12.24)***
Controlled motivation		32.70 (12.28)**	32.82 (11.82)**	32.78 (11.79)**
Amotivation		-20.06 (12.98)	-18.70 (12.54)	-19.18 (12.52)
Pupil sex (girl)[b]			-63.21 (28.17)*	-82.05 (16.34)***
Extracurricular school-based sports participation (yes)[c]			60.63 (41.61)	44.19 (17.34)*
Community sports participation (yes)[d]			160.19 (28.66)***	155.36 (17.65)***
Girl x extracurricular school-based sports			-60.30 (57.52)	
Girl x community sports			-16.42 (35.55)	
Extracurricular school-based sports x community sports			-3.13 (48.62)	
Girl x extracurricular school-based sports x community sports			44.39 (70.04)	
Random part				
School-level variance	4398.37 (1947.81)*	3321.782 (1518.03)*	3401.40 (1485.89)*	3479.02 (1513.04)*
Class-level variance	2502.54 (1569.71)	1752.47 (1259.70)	1647.72 (1168.37)	1721.72 (1183.35)
Pupil-level variance	97963.65 (3674.88)***	79638.297 (3055.98)***	73377.76 (2815.83)***	73402.18 (2816.86)***
Deviance test model	21713.22	20490.35***	20374.20 ***	20375.92 ***
χ^2 (df)		1222.88 (5)	116.15 (12)	114.427 (8)

Note. Values in parentheses are standard errors; * $p < .05$; ** $p < .01$, *** $p < .001$. Reference category = 0; [a] 0 = low and medium SES, 1 = high SES; [b] 0 = boy, 1 = girl; [c] 0 = no participation in extracurricular school-based sports in the current school year, 1 = participation in extracurricular school-based sports in the current school year; [d] 0 = no participation in community sports in the current school year, 1 = participation in community sports in the current school year. Model 1b and 1c were both compared to model 1a to calculate χ^2

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Table 4: Relationship between sex, extracurricular school-based sports participation, community sports participation and autonomous motivation for sports

	Autonomous motivation for sports (Model 2)			
Parameter	Null model 2	Model 2a	Model 2b	Model 2c
Fixed part				
Intercept	3.83 (0.05)	3.82 (0.03)	3.60 (0.05)	3.59 (0.04)
Age		-0.03 (0.01)**	-0.01 (0.01)	-0.01 (0.01)
SES (high)[a]		0.08 (0.04)*	0.03 (0.03)	0.03 (0.03)
Controlled motivation		0.26 (0.03)***	0.23 (0.03)***	0.23 (0.03)***
Amotivation		-0.76 (0.02)***	-0.63 (0.02)***	-0.63 (0.02)***
Pupil sex (girl)[b]			-0.22 (0.06)***	-0.17 (0.03)***
Extracurricular school-based sports participation (yes)[c]			0.35 (0.09)***	0.18 (0.04)***
Community sports participation (yes)[d]			0.47 (0.06)***	0.49 (0.04)***
Girl x extracurricular school-based sports			-0.08 (0.12)	
Girl x community sports			0.13 (0.08)	
Extracurricular school-based sports x community sports			-0.19 (0.10)	
Girl x extracurricular school-based sports x community sports			-0.02 (0.15)	
Random part				
School-level variance	0.03 (0.02)	0.01 (0.01)	0.00 (0.00)	0.00 (0.00)
Class-level variance	0.06 (0.02)**	0.01 (0.01)	0.01 (0.00)	0.01 (0.00)
pupil-level variance	0.77 (0.03)***	0.41 (0.02)***	0.34 (0.01)***	0.35 (0.01)***
Deviance test model	3991.03	2873.88***	2597.81***	2610.08***
X^2 (df)		1117.15	276.06	263.79

Note. Values in parentheses are standard errors; * $p < .05$; ** $p < .01$, *** $p < .001$. Reference category = 0; [a] 0 = low and medium SES, 1 = high SES; [b] 0 = boy, 1 = girl; [c] 0 = no participation in extracurricular school-based sports in the current school year, 1 = participation in extracurricular school-based sports in the current school year; [d] 0 = no participation in community sports in the current school year, 1 = participation in community sports in the current school year Model 2b and 2c were both compared to model 2a to calculate χ^2

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Table 5: Relationship between sex, extracurricular school-based sports participation, community sports participation and controlled motivation for sports

	Controlled motivation for sports (Model 3)			
Parameter	Null model 3	Model 3a	Model 3b	Model 3c
Fixed part				
Intercept	1.87 (0.02)	1.90 (0.03)	1.90 (0.05)	1.91 (0.04)
Age		0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
SES (high)[a]		-0.06 (0.03)	-0.05 (0.03)	0.06 (0.03)
Autonomous motivation		0.24 (0.02)***	0.24 (0.03)***	0.24 (0.03)***
Amotivation		0.24 (0.02)***	0.24 (0.03)***	0.24 (0.03)***
Pupil sex (girl)[b]			0.04 (0.06)	-0.00 (0.04)
Extracurricular school-based sports participation (yes)[c]			-0.10 (0.09)	-0.01 (0.04)
Community sports participation (yes)[d]			0.04 (0.06)	-0.01 (0.04)
Girl x extracurricular school-based sports			0.10 (0.13)	
Girl x community sports			-0.14 (0.08)	
Extracurricular school-based sports x community sports			0.03 (0.11)	
Girl x extracurricular school-based sports x community sports			0.08 (0.16)	
Random part				
School-level variance	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Class-level variance	0.01 (0.01)	0.00 (0.00)	0.00 (0.01)	0.00 (0.00)
pupil-level variance	0.40 (0.02)***	0.38 (0.01)***	0.37 (0.01)***	0.37 (0.01)***
Deviance test model	2909.70	2699.50 ***	2691.77	2699.26
X^2 (df)		210.20 (5)	7.73 (11)	0.25 (7)

Note. Values in parentheses are standard errors; * $p < .05$; ** $p < .01$, *** $p < .001$. Reference category = 0; [a] 0 = low and medium SES, 1 = high SES; [b] 0 = boy, 1 = girl; [c] 0 = no participation in extracurricular school-based sports in the current school year, 1 = participation in extracurricular school-based sports in the current school year; [d] 0 = no participation in community sports in the current school year, 1 = participation in community sports in the current school year Model 3b and 3c were both compared to model 3a to calculate χ^2

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Table 6: Relationship between sex, extracurricular school-based sports participation, community sports participation and amotivation for sports

	Amotivation for sports (Model 4)			
Parameter	Null model 4	Model 4a	Model 4b	Model 4c
Fixed part				
Intercept	1.60 (0.04)	1.59 (0.02)	1.72 (0.05)	1.68 (0.04)
Age		0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
SES (high)[a]		-0.02 (0.03)	-0.02 (0.03)	-0.01 (0.03)
Autonomous motivation		-0.61 (0.02)***	-0.61 (0.02)***	-0.61 (0.02)***
Controlled motivation		0.22 (0.02)***	0.22 (0.02)***	0.22 (0.02)***
Pupil sex (girl)[b]			-0.17 (0.06)**	-0.10 (0.03)**
Extracurricular school-based sports participation (yes)[c]			0.04 (0.09)	0.04 (0.04)
Community sports participation (yes)[d]			-0.13 (0.06)*	-0.09 (0.04)*
Girl x extracurricular school-based sports			0.11 (0.12)	
Girl x community sports			0.12 (0.07)	
Extracurricular school-based sports x community sports			0.01 (0.10)	
Girl x extracurricular school-based sports x community sports			-0.17 (0.15)	
Random part				
School-level variance	0.02 (0.01)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Class-level variance	0.03 (0.01)*	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
pupil-level variance	0.63 (0.02)***	0.34 (0.01)***	0.34 (0.01)***	0.34 (0.01)***
Deviance test model	3658.65	2559.80***	2540.16*	2544.26*
X^2 (df)		1098.67 (4)	19.82 (11)	15.72 (7)

Note. Values in parentheses are standard errors; * $p < .05$; ** $p < .01$, *** $p < .001$. Reference category = 0; [a] 0 = low and medium SES, 1 = high SES; [b] 0 = boy, 1 = girl; [c] 0 = no participation in extracurricular school-based sports in the current school year, 1 = participation in extracurricular school-based sports in the current school year; [d] 0 = no participation in community sports in the current school year, 1 = participation in community sports in the current school year Model 4b and 4c were both compared to model 4a to calculate χ^2