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Physical activity levels during youth sport practice: does coach training or experience have an influence?

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ABSTRACT

This study examined moderate-to-vigorous physical activity (MVPA) levels in youth during flag football practice and compared youth MVPA in practices led by trained or untrained, and by experienced or inexperienced, coaches. Boys (n = 111, mean age = 7.9 ± 1.2 years) from 14 recreation-level flag football teams wore an accelerometer during two practices. Each team's volunteer head coach reported prior training and coaching experience. Mixed-model team-adjusted means showed the proportion of practice time spent in sedentary (13 ± 1%), MVPA (34 ± 2%) and vigorous (12 ± 1%) activity. Practice contributed ~20 min of MVPA towards public health guidelines. There was no significant difference in percentage time spent in MVPA between teams with trained (mean = 33.3%, 95% CI = 29.4%, 37.2%) and untrained coaches (mean = 35.9%, 95% CI = 25.5%, 42.4%) or between experienced (mean = 34.1%, 95% CI = 30.2%, 38.0%) and inexperienced coaches (mean = 33.8, 95% CI = 27.9%, 39.7%). Although sport provides a setting for youth to accrue MVPA, two-thirds of practice was spent sedentarily or in light activity. Participation in a coach training programme was not associated with higher MVPA. Further research is needed to inform volunteer coach training programmes that provide coaches with skills necessary to increase the percentage of practice time spent in MVPA.

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KEYWORDS
Moderate-to-vigorous physical activity; accelerometer; organised sport

Introduction

Participation in physical activity (PA) has been associated with numerous health benefits in children and adolescents, including decreasing the risk of type 2 diabetes, hypertension, heart disease and osteoporosis (Janssen & Leblanc, 2010). Current PA guidelines recommend children to accrue 60 min of moderate-to-vigorous physical activity (MVPA) per day, a portion of which should be vigorous activity (VPA) at least 3 days per week (U.S Department of Health and Human Services, 2008). Despite the evidence for the benefits of PA, less than half of 6–11 year olds and only 8% of 12–15 year olds in the United States meet PA guidelines (Troiano et al., 2008).

One suggested strategy to increase MVPA among youth is participation in developmentally age-appropriate sports (School Health Council on Sports Medicine and Fitness and Council on School Health, 2006). Children who participate in youth sport have higher MVPA than their non-participating counterparts, and accumulate more MVPA during sport days compared to non-sport days (Nelson et al., 2011; Nielsen, Bugge, & Andersen, 2007; Wickel & Eisenmann, 2007). Compared to other physical activity settings, youth sport has been shown to contribute more minutes of MVPA to daily totals than either physical education (PE) or recess (Wickel & Eisenmann, 2007).

In the United States an estimated 44 million children and adolescents participate in youth sport (National Council of Youth Sports, 2008). A survey by the Women's Sports Foundation Research Project (2008) reported that 84% of 3rd–12th grade boys and girls had participated in youth sport and 72% were current participants (i.e., participated on a youth sport team one or more times in the past year) (Sabo & Veliz, 2008). Of these, 55% of 3rd–8th graders participated in a community-based sport programme, such as Parks and Recreation. Therefore, youth sport is a setting with the potential to reach a large number of children to have a public health impact (Kokko, Green, & Kannas, 2013).

Although youth sport contributes to daily MVPA, approximately half of youth sport time is spent in either sedentary or light activity (Guagliano, Rosenkranz, & Kolt, 2013; Leek et al., 2011; Sacheck et al., 2011; Wickel & Eisenmann, 2007). Studies conducted in youth sport have shown that a range of 30–53% of available practice or game time is spent in MVPA for soccer, baseball, softball, basketball and netball (Cohen, McDonald, McIver, Pate, & Trost, 2013; Guagliano et al., 2013; Leek et al., 2011; Sacheck et al., 2011; Wickel & Eisenmann, 2007).

One way to increase daily amounts of physical activity is to increase the percentage of time during youth sport practices that children are active. Coaches are key leaders of the youth sport setting, leaders who provide the structure that contributes to the variability in percentage of active time. As youth sport programmes primarily utilise volunteer coaches, often with little coaching experience or training (Conroy &

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Coatsworth, 2006; Seefeldt & Ewing, 1997), providing coach training may provide the skills necessary to conduct an active practice. Therefore, this study has two objectives: (1) to report PA levels during practice time for Parks and Recreation youth flag football participants; and (2) to compare youth PA levels between teams with trained coaches versus untrained coaches, and between teams with experienced coaches versus inexperienced coaches. We chose flag football because over one million high school boys compete annually in school football programmes, more than double the amount who participate in basketball or baseball (The National Federation of State High School Associations, 2014). As such, a large number of boys are likely to also partake in a youth football experience, such as recreation flag football. Our first hypothesis was that children would spend less than 50% of flag football practice time in MVPA. Our second hypothesis was that coaches who had received prior coach training or had prior experience coaching football would conduct practices that resulted in higher MVPA than their untrained or inexperienced counterparts.

Methods

Setting

Youth flag football teams participating in a Parks and Recreation league in a Midwestern city of >50,000 residents were targeted for recruitment for the study (Figure 1). The league ran from the last week of August until the last week of October, with teams practicing once or twice weekly, and playing one game per week, for a total of 8 games per season. Teams were grouped by school grade level into the following 3 leagues: 1st/2nd, 3rd/4th and 5th/6th. The 5th/6th grade league had a small number of teams and was excluded. All 24 teams in the 1st/2nd or 3rd/4th grade league were eligible for the study, of which 15 volunteered for participation. One team was excluded due to scheduling conflicts. The Institutional Review Board of the study authors' university approved this project.

Participants

Of 126 youth enrolled on participating teams, 112 (91%) provided parental informed consent to participate in the study. Fourteen children did not return parental consent forms. One female was excluded, resulting in 111 male participants, ranging in age from 5 to 11 years (7.9 years, SD = 1.2) (see Table 2).

Measures

Physical activity

Physical activity was assessed using ActiGraph GT1 M accelerometers (ActiGraph; Pensacola, FL). ActiGraph accelerometers are the most widely used accelerometer in PA research, and have been validated against criterion measures to quantify PA in youth (Cain, Sallis, Conway, Van Dyck, & Calhoon, 2013; Trost, Mciver, & Pate, 2005). In order to capture sporadic movement of children, especially in the flag football setting, 15-s epochs were used (Cain et al., 2013; Trost et al., 2005). PA was assessed from scheduled practice start time until practice completion.

To be included in analysis, boys had to arrive at practice within 30 min after the start of practice. After data collection,

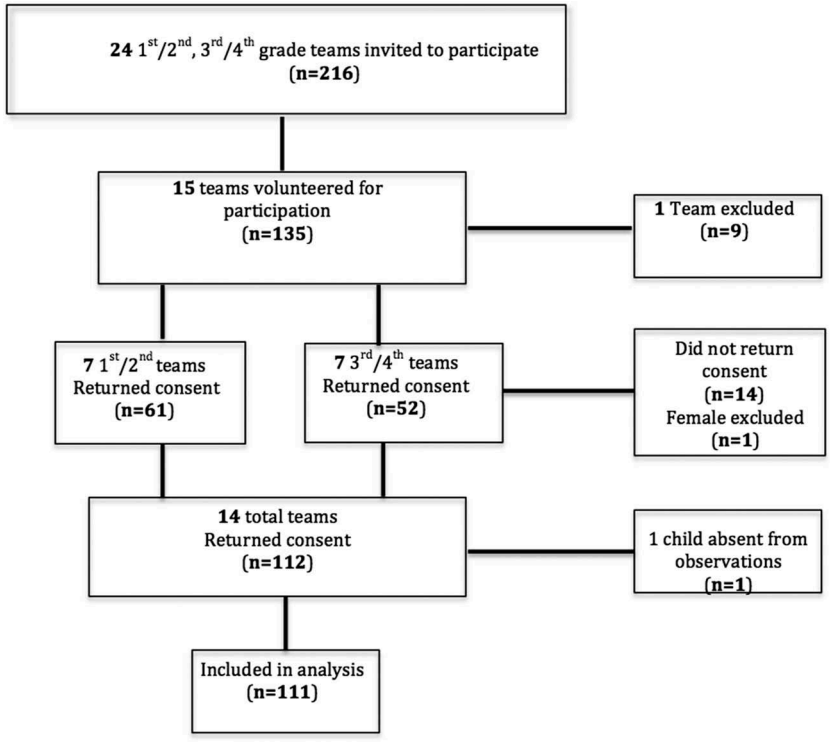

Figure 1. Recruitment and consent flow chart.

stored epochs were downloaded into ActiLife v6.6.3 where all data outside of each participant's accelerometer wear times were excluded. An age-specific cut-point, validated for the participants' age group, was applied to determine time spent in sedentary (≤100 counts per minute, CPM), light (101–2295 CPM), moderate (2296–4011 CPM) and vigorous activity (≥4012 CPM) (Evenson, Catellier, Gill, Ondrak, & McMurray, 2008).

Classification of coach training and experience

Coaches completed a short questionnaire regarding demographic information, in addition to past coach training and past coaching experience. Coach training was defined as any of the following: a degree related to coaching; coach certification; coach training workshop; or National Youth Sport Coaching Association Training (NYSCA, provided free of charge to all coaches through city Parks and Recreation programme). Prior coach experience was defined as having coached football at least once prior to the current season, regardless of competition level (e.g., school competitive, non-school affiliated competitive or recreation). Coaches were categorised for three comparisons: trained or untrained; received NYSCA training or did not receive NYSCA training; and prior experience coaching football or no prior experience coaching football.

Child demographics

Child demographic characteristics including child and caregiver date of birth, gender, race, socioeconomic status (via free or reduced lunch status, and caregiver education level) were obtained through a parent questionnaire.

Procedures

Data collection

For each of the participating teams (n = 14) a research assistant attended a practice or parent meeting to introduce the project to parents, familiarise children with the accelerometers, and collect parent and coach consent and survey information. Coaches were asked to handle distribution and collection of consent forms for parents absent from the initial meeting. Only children with parental consent were included in the study.

During September and October, one or more research assistants attended two practices per team, allowing at least 14 days between the first and second practice for each team. Research assistants placed accelerometers on each consenting child as he arrived to practice, and removed it upon practice completion. Accelerometers were placed on the right hip of the child, underneath the shirt, so as to avoid interference with flags the children wore. Practice beginning and end times, as well as each child's accelerometer on-and-off times, were recorded using a universally synchronised clock.

Statistical analysis

A three-level model (team, time, child) examined the impact of coach experience (previous coaching, no previous coaching), coach training (trained, untrained), or NYSCA training (NYSCA training, no NYSCA training) and time during season (Early, Late) on physical activity responses (sedentary, moderate-to-vigorous, vigorous) using SAS Proc Mixed (SAS version 9.4). Team, Team*Day and Child were random effects. Percentage of time and absolute minutes spent in each PA intensity were presented.

Results

Team characteristics

All 14 team coaches were male (mean age = 40.1 years, SD = 12.5, see Table 1). Team coaches were largely Non-Hispanic Caucasian (78.6%, n = 11) and had at least a college degree (64%, n = 9). Survey responses indicated that 10 (71%) coaches had received coach training prior to practice observation, in the form of workshops (n = 3), certifications (n = 3) or city-provided NYSCA training (n = 7), while 4 (29%) coaches had received no prior training. Ten (71%) had coached football before (any competition level) and 4 (29%) had no prior experience coaching football.

Practice duration ranged from 27 to 90 min with a mean of 61.5 (SD = 8.6) min.

Participant characteristics

Participant characteristics are displayed in Table 2. All 111 children were male, with a mean age of 7.9 years (SD = 1.2). The majority of children were Non-Hispanic Caucasian (78%), had parents who were Non-Hispanic Caucasian (82%) and did not qualify for free or reduced lunch (71%). Most mothers and fathers reported achieving at least a college degree (66% and 69%, respectively).

Physical activity

Minutes and percentage of time spent in each physical activity intensity level during practice are presented in Table 3. Teams averaged 13% (95% CI = 10.8%, 15.2%) of practice time in sedentary activity, 34% (95% CI = 31.1%, 36.9%) of practice

Table 1. Team characteristics.

Coach participants,*n*	14
Coach age, years (SD)	40.1 (12.5)
Coach education level, % (*n*)	
High School	7.1 (1)
Some college or associates degree	28.6 (4)
Graduated college	35.7 (5)
Master's degree or above	28.6 (4)
Coach race, % (*n*)	
White (non-Hispanic)	85.6 (11)
Ethnic minority	21.4 (3)
Team grade level, % (*n*)	
First/second	50.0 (7)
Third/fourth	50.0 (7)
Day 1 Attendance, number of kids (SD)	6.6 (1.6)
Day 2 Attendance, number of kids (SD)	7.0 (1.3)
Average consent per team, number of kids (SD)	8.0 (1.2)
Prior coaching experience, % (*n*)	
Prior coaching Football	71.4 (10)
Prior coaching non-school competitive	21.4 (3)
Prior coaching school competitive	21.4 (3)
Prior coaching recreation/non-competitive	42.9 (6)
No prior coaching	14.3 (2)
Prior coach training, % (*n*)	
Coaching certification	21.4 (3)
Coaching Workshop	21.4 (3)
NYSCA	50.0 (7)
No training	28.6 (4)

Abbreviations: SD, standard deviation; NYSCA, National Youth Sport Coaching Association.

Table 2. Child characteristics.

Participants,*n*	111
Age, years (SD)	7.9 (1.2)
Free or reduced lunch status, % (*n*)	
Not eligible	71.2 (74)
Free/reduced	25.0 (26)
Do not know	3.6 (4)
Race/ethnicity, % (*n*)	
Non-Hispanic Caucasian	77.7 (80)
Racial/Ethnic minority	22.3 (23)
Parent race/ethnicity, % (*n*)	
Non-Hispanic Caucasian	81.6 (84)
Racial/ethnic minority	18.4 (19)
Mother education, %(*n*)	
Less than high school	1.0 (1)
High School	6.0 (6)
Some college or associate's degree	27.0 (27)
Graduated college	38.0 (38)
Master's degree or above	28.0 (28)
Father education, % (*n*)	
Less than high school	0 (0)
High School	9.8 (9)
Some college or associate's degree	20.8 (20)
Graduated college	42.7 (41)
Master's degree or above	26.0 (25)
Does not apply	1.0 (1)

SD, standard deviation.

time in MVPA and 12% (95% CI = 10.4%, 13.6%) of practice time in VPA. Practice contributed 19.9 min (95% CI = 17.55, 22.25) of MVPA towards recommended public health guidelines of 60 min of MVPA per day. There were no significant differences in percentage of time spent in PA intensities between practices during the first half of the season (Day 1) or the second half of the season (Day 2).

Mean minutes and percentage of time spent in sedentary, moderate to vigorous, and vigorous activity are presented separately for trained and untrained coaches, coaches trained with and without NYSCA training, and experienced and inexperienced coaches (Table 3). There were no significant differences in percentage of time spent sedentary (F [1,24] = 2.01, P = 0.17), in MVPA (F [1,24] = 0.47, P = 0.50), or in VPA (F [1,24] = 0.17, P = 0.68), between trained and untrained coaches. No significant differences were found between coaches with and without NYSCA training in percentage of time spent sedentary (F [1,25] = 0.00, P = 0.95), in MVPA (F [1,25] = 0.36, P = 0.56, or in VPA (F [1,25] = 0.66, P = 0.43). No significant differences were found between experienced and inexperienced coaches for percentage of time spent sedentarily (F [1,24] = 0.11, P = 0.73), MVPA (F [1,24] = 0.01, P = 0.92), or VPA (F [1,24] = 0.07, P = 0.79). No significant differences were found for minutes spent in each physical activity intensity between trained and untrained coaches, NYSCA trained coaches and non-NYSCA trained coaches, or coaches with experience and coaches without experience.

Discussion

The objective of this study was to determine the amount of physical activity accrued during youth flag football practice, and to compare children's physical activity levels between coaches with or without training and experience. Our first hypothesis, that children would spend less than 50% of practice time engaged in MVPA, was supported. Our second hypothesis, that coaches with prior training or prior experience in coaching flag football would conduct practices resulting in higher levels of physical activity, was not supported.

Although there are no current recommendations for the amount of time that should be spent in MVPA for youth sport, there are guidelines for similar youth settings (e.g., physical education (PE)), where it is recommended that youth spend at least 50% of time in MVPA during the session (U.S Department of Health and Human Services, 2008). Results from our study indicate that across all teams, 33% of practice time was spent in MVPA, far lower than recommendations for structured PE or similar settings.

Current physical activity guidelines recommend children accumulate at least 60 min of MVPA per day, half of which is recommended to come from regular school hours, with the remaining half recommended to come from out-of-school time (Koplan, Liverman, & Kraak, 2005; U.S Department of Health and Human Services, 2008). Youth sport presently contributes significantly to daily MVPA totals, but there is substantial room for improvement. Across all flag football teams, approximately 20 min of MVPA were accrued during youth sport practice. By achieving 50% of time in MVPA, youth sport would have the potential to contribute an additional 10 min of MVPA per practice, totalling 30 min of MVPA per practice, or the recommended amount of MVPA to be accrued outside of the school setting.

Youth sport offers an opportunity to accumulate VPA, which the guidelines suggest should be performed at least 3 days per week (U.S Department of Health and Human Services, 2008). In children, participation in VPA has shown inverse relationships with waist circumference, fat mass, systolic blood pressure and BMI (Carson et al., 2014; Steele, Van Sluijs, Cassidy, Griffin, & Ekelund, 2009), as well as a positive relationship with cardiorespiratory fitness (Carson et al., 2014).

Table 3. Least squares means estimate of sedentary, MVPA and VPA percentage and minutes of practice time by coach characteristic.

	All teams (n = 14)	Overall trained (n = 10)	No training (n = 4)	NYSCA training (n = 7)	No NYSCA training (n = 7)	Coach experience (n = 10)	No prior coach experience (n = 4)
Sedentary mean (SE)							
%	13.0 (1.1)	14.4 (1.4)	11.1 (1.9)	14.0 (1.8)	14.2 (2.1)	13.8 (1.5)	12.9 (2.1)
Min	7.7 (0.5)	8.7 (0.6)	6.6 (0.7)	8.0 (0.8)	8.5 (0.9)	8.4 (0.07)	7.5 (1.0)
MVPA mean (SE)							
%	34.0 (1.5)	33.3 (2.0)	33.3 (2.0)	19.4 (1.5)	32.7 (2.4)	34.1 (2.0)	33.8 (3.0)
Min	19.9 (1.2)	19.4 (1.5)	35.9 (3.3)	19.6 (1.9)	19.7 (1.9)	19.8 (1.6)	20.5 (2.5)
VPA mean (SE)							
%	12.0 (0.8)	11.3 (1.0)	12.1 (1.7)	12.1 (0.6)	10.7 (1.6)	11.6 (1.0)	11.1 (1.5)
Min	6.8 (0.5)	6.5 (0.6)	7.3 (1.1)	6.9 (0.5)	6.5 (1.1)	6.7 (0.7)	6.8 (1.1)

MVPA, moderate to vigorous physical activity; SE, standard error; NYSCA, National Youth Sport Coaching Association.

In the present study, 11% of practice time (approximately 7 min) was spent in VPA. Recent studies suggest that a minimum of 7 min of VPA is necessary to gain health benefits (Hay et al., 2012) though 15 min a day has been recommended to increase likelihood of meeting health benefits (Martinez-Gomez et al., 2010).

Other studies characterising PA during youth sport have shown considerable variation in MVPA depending on sport, context (game or practice) and age (Cohen et al., 2013; Guagliano et al., 2013; Katzmarzyk, Walker, & Malina, 2001; Leek et al., 2011; Sacheck et al., 2011; Wickel & Eisenmann, 2007). Cohen and colleagues (2013) characterised PA during youth soccer in a similar age group to the present study (5–10 years), and found children spent a larger percentage of practice time in sedentary activity (24%), and in MVPA (36.8%) compared to the present study. Contrary to the present study, Cohen included both boys and girls, and examined soccer, which is likely to have higher amounts of MVPA than flag football (Wickel & Eisenmann, 2007).

To our knowledge only one other study has examined youth sport flag football physical activity levels: Wickel and Eisenmann (2007). They found similar amounts of time (11 min) spent in VPA and substantially more time (28 min) spent in MPVA in a similar age group (6–12y), although comparison between outcomes is difficult due to differences in reporting units. Wickel and Eisenmann (2007) reported minutes spent in each PA intensity after controlling for practice time, but no percentage of time was presented, nor were the raw minutes. The differences in MVPA outcomes that are observed could be attributed to difference in accelerometer methods. In the present study, practice start and stop times, as well as accelerometer wear time, were observed by a research assistant. Wickel and Eisenmann (2007) relied on self-reported practice times and a standardised non-wear time analysis, which may inaccurately estimate practice time and accelerometer wear time, respectively. Two accelerometer data reduction methods were also different between the two studies: epoch length and accelerometer count cut-point selection. Wickel and Eisenmann (2007) reintegrated 30-s epochs to 60-s epochs for analysis, which may overestimate MVPA levels (Kim, Beets, Pate, & Blair, 2013) and used Freedson's age-specific metabolic equivalent (MET) cut-point to classify physical activity intensity (Freedson, Pober, & Janz, 2005), which has been shown to misclassify light activity as moderate activity in youth ≤10 years (Trost, Loprinzi, Moore, & Pfeiffer, 2011). The present study used 15-s epochs and applied Evenson et al. (2008) cut-points to activity counts to analyse intensity, currently considered the most accurate estimation of physical activity for this age group (Trost et al., 2011).

Our second hypothesis concerned potential differences in physical activity levels of teams with trained versus untrained and experienced versus inexperienced coaches. As coaches are the leaders of the youth sport setting, we hypothesised that coaches who had received training prior to practice observation, or who had prior coaching experience, would conduct practices that resulted in higher physical activity levels than their untrained or inexperienced counterparts. No significant differences were found, however, between trained and untrained coaches, or experienced and inexperienced coaches. These results indicate that further research is needed on how to train coaches to conduct practices that provide opportunities for MVPA. Guagliano and colleagues (2015) demonstrated the efficacy of a short-term coach training programme that focused on strategies that coaches could implement in their practices to increase MVPA and decrease inactivity (Guagliano et al., 2015). The authors demonstrated that brief coach education sessions could significantly increase MVPA and decrease inactivity without detrimental effects on players' motivation in a youth sport context (Guagliano et al., 2015; Guagliano, Lonsdale, Kolt, & Rosenkranz, 2014).

In the PE setting, providing training to teachers on basic management strategies has been shown to increase in-class MVPA (Lonsdale et al., 2013). The SPARK PE programme trained and provided a curriculum to PE specialists as well as teachers who had no formal physical education training. Following training, specialists led PE sessions that resulted in greater activity than teacher PE sessions, although both accumulated greater MVPA than the control condition (Sallis et al., 1997). Although PE specialists conducted sessions with the greatest PA, teachers with no formal degree in PE were also responsive to the intervention, thus suggesting training may be effective in populations with and without formal PE backgrounds.

Out-of-school settings, such as after-school or Girl Scout programmes, have also been targeted to increase MVPA (Dzewaltowski et al., 2010; Rosenkranz, Behrens, & Dzewaltowski, 2010). Similar to recreation youth sport, out-of-school programmes often employ leaders who have not had training in PE. As such, success in training after school providers to increase physical activity shows promise that the same can be done in the youth sports setting, where volunteer coaches often have little or no training in regard to promoting PA.

The HOP'N After-School programme found that training after-school leaders with teaching strategies to increase MVPA during active recreation resulted in a greater percentage of time spent in MVPA compared to control (Dzewaltowski et al., 2010). Also in the after-school setting, Weaver and colleagues (2014) showed success in increasing staff behaviours that were conducive to physical activity, such as staff leading a physically active session, staff utilising small games, staff verbally promoting physical activity, staff engaged in physical activity with children, and offering more than one physical activity opportunity (Weaver et al., 2014). The programme also decreased occurrences of staff verbally discouraging physical activity or withholding physical activity as a consequence of misbehaviour, occurrences of children standing in line and waiting for a turn, frequency of elimination games and idle time (Weaver et al., 2014). Although physical activity was not measured, these staff behaviours have been associated with an increase in MVPA during session (Foster, Behrens, Jager, & Dzewaltowski, 2010; Weaver, Webster, & Beets, 2013). In Girl Scout Troops, the Scouting Nutrition and Activity Program (SNAP) (2010) used troop leader training to decrease girls' time spent sedentarily and increase MVPA, as well as increase troop leader PA promotion (Rosenkranz et al., 2010).

Current coach training programmes may not emphasise achieving MVPA as an important outcome of youth sport. One reason for this may be that coaches believe that their players are performing adequate amounts of physical activity during youth sport sessions (Guagliano, Lonsdale, Rosenkranz, Kolt, & George, 2014). Through qualitative interviews with volunteer youth sport coaches, Guagliano and colleagues (2014) found that although coaches perceived themselves as role models for girls' physical activity, they also believed that their players were accumulating sufficient amounts of PA during practice.

Though youth sport largely has not been considered as an avenue to impact public health, the setting has the potential to reach a large number of children. In the future, researchers and practitioners should focus on physical activity as a primary outcome of youth sport. Moreover, researchers should attempt to determine which coaching strategies and coach behaviours are related to high amounts of physical activity, without compromising on the myriad positive outcomes associated with sports participation, such as enjoyment or skill development.

Potential limitations to the current study should be considered when interpreting the results. First, due to time and budget constraints, the sample was limited to 14 teams of one sport and only boys. Further, the generalisability of the results of the current study across other flag football programmes is limited. The present study was conducted in a Midwestern city with a Parks and Recreation programme that utilised volunteer coaches. Coaches of other programmes, such as teams who provide financial compensation for their coaches, may differ. However, numerous youth programmes use primarily volunteer coaches. In addition, our study was delimited to the youth sport setting and did not assess contribution of youth sport to overall daily PA levels. Despite these limitations, this study was able to provide a detailed description of PA during youth sport practice, due to a high participation rate across teams (91%), use of objective measures of PA and a rigorous definition of practice time. A research assistant observed all practices, therefore start and stop time were observed rather than gathered from an athlete or coach self-report. In addition, the start of practice was defined as the time the coach scheduled for practice, thus, coaches were held accountable for the entire duration of scheduled practice time, regardless of whether practice began on time or not. To our knowledge, this is the first study to compare children's PA levels between recreational teams with coaches that were trained versus untrained, and those that were experienced compared to inexperienced.

Conclusion

Although the observed flag football programmes are contributing to public health physical activity guidelines (20 of the 60 min needed daily), two-thirds of practice was spent in sedentary or light activity, leaving an opportunity for coaches to increase time spent in MVPA. Current coach training showed no difference in youth sport physical activity levels. Further research is needed to identify strategies to train volunteer coaches with the skills necessary to increase the percentage of time spent in MVPA at practice, thus helping children to increase their daily MVPA levels towards meeting public health guidelines.

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No potential conflict of interest was reported by the authors.

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