

Exploring Coaches' Perceptions of Youth Sport Specialization: A Comparison of High School and Club Sport Contexts

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Context: Previous researchers have identified sport specialization as being associated with various negative outcomes (eg, overuse injuries and adverse psychosocial outcomes). However, little is known regarding how the underlying attitudes, beliefs, and values of sport stakeholders may be shaping this trend.

Objective: To examine the perceptions of coaches in the high school versus club sport setting and compare their attitudes and behaviors toward sport specialization.

Design: Cross-sectional survey.

Patients or Other Participants: A total of 769 coaches (497 high school coaches, 272 club sport coaches).

Main Outcome Measure(s): Participants completed a novel measure that surveyed their perceptions regarding various aspects of youth sport specialization. Additionally, each coach completed a questionnaire detailing his or her relevant demographic and sport background information.

Results: High school coaches and club sport coaches differed in their perceptions of sport specialization ($t_{767} = 1.41$, $P < .001$); club coaches (2.43 ± 0.25) were more likely than high school coaches (2.31 ± 0.21) to rate specialization as a

positive, adaptive practice. The multiple linear regression equations for both the high school and club coaches indicated that no educational, experiential, or demographic factors predicted coaches' perceptions of specialization (P values $> .05$).

Conclusions: Club sport coaches were more likely to possess attitudes in favor of sport specialization. Additionally, coaches' background characteristics did not predict their perceptions of specialization, suggesting that the competitive context itself (high school versus club) may be the most salient influencer of these perceptions. Athletes and sports medicine practitioners should be aware of the heightened expectation of specialized participation and resulting increased injury risk in these contexts. Pediatric sport researchers and practitioners should continue to explore how these different group perceptions manifest in participation behaviors and may link to overall athlete health, wellbeing, and development.

Key Words: youth sport participation, positive youth development, coaches' attitudes

Key Points

- The context of athletic participation (high school versus club sport) influenced expectations and attitudes regarding sport specialization, which may in turn have affected athletes' sport outcomes and experiences.
- Rather than exclusively examining behaviors related to specialized sport participation, it may be more fruitful to explore the perceptions of stakeholders in different youth sport systems, which can help us understand why athletes choose to specialize in a single sport.

A key focus of contemporary youth sport research is to detail the structure of sport participation: specifically, how athletes distribute their time and energy in a single sport versus among multiple sports. This concept, most frequently referred to as *sport specialization*, includes the pursuit of elite status in a signature sport, often to the exclusion of other sports, with intensive training loads and durations.^{1–3}

As the popular and scholarly attention to athlete sport participation has increased, specialization—particularly at an early age—has been posited as potentially harmful to the overall health, wellbeing, and development of youth

participants. Sport specialization has been associated with a higher likelihood of negative physical outcomes, such as increased overuse injuries,^{4–6} as well as adverse psychosocial outcomes, such as dropout from sport, burnout, the development of a unidimensional identity, and lower community engagement.^{7–9} Despite recommendations against early specialization,^{10,11} the prevalence of highly specialized youth athletes continues to be a concerning trend in the academic and practical domains of youth sport.^{4,12} In sum, athletic trainers (ATs) and sports medicine practitioners are becoming increasingly aware of the risks of sport specialization, yet little is known regarding the

contextual characteristics and underlying attitudes that may be driving this trend.

Recent literature^{4,13–16} has suggested that when examining athletes' participation behaviors, accounting for context is critical. For example, athlete sex has appeared meaningful in the sport-participation pathways of youth athletes, and females were more likely to specialize early, had a greater degree of uncertainty regarding their pathway selection, and experienced heightened training loads in relation to their male athlete counterparts.^{13,14} Additionally, school size was positively related to an athlete's propensity to specialize, indicating that athletes from larger schools were more likely to identify as specialists, whereas those from smaller schools were more likely to identify as multisport athletes.⁴ Finally, the type of sport has been identified both conceptually¹⁵ and empirically¹⁶ as a salient influencer of the utility of early specialization.

One novel proposed avenue for better understanding the logical gap between recommendations and perceived specialization behaviors is to explore the perceptions, attitudes, and beliefs of youth sport stakeholders that may guide athletes to select their respective sport-participation pathways. To better understand this pathway selection, we must examine the high school and club sport settings. Though athletes occasionally must choose between these competitive contexts, little is known about how they compare in terms of their climates for specializing in a single sport. Broadly, high school sport is more typically aligned with the tenets of educational athletics, including a focus on holistic growth over elite talent development.¹⁷ Club sports, on the other hand, often involve a more commercial pay-to-play system, and these highly competitive levels may lead to a de-emphasis on the individual's holistic development in favor of pursuit and achievement of elite status.³ These contexts have potentially far-reaching implications for how athletes should be trained, treated, and guided by ATs and sports medicine practitioners in each setting.

Therefore, the purpose of our study was to compare the perceptions of youth sport specialization between high school and club sport coaches. A second aim was to determine if coaches' characteristics predicted perceptions of specialization within each group. We hypothesized that the heightened professionalization of club sports would align with more favorable attitudes of club sport coaches than high school coaches toward youth sport specialization.

METHODS

Participants

The Institutional Review Board at the University of Wisconsin–Madison approved the study and procedures. Coaches of high school and club teams with high school-aged athletes from 3 sports popular in both settings (basketball, soccer, volleyball)¹⁸ were invited via e-mail to complete an anonymous electronic questionnaire (Qualtrics, Provo, UT) regarding their perceptions of youth sport specialization. A convenience sample of coaches was recruited via e-mails to (1) high school coaches through the Michigan High School Athletic Association and (2) club sport coaches using publicly available e-mail addresses for club sport organizations in Illinois, Michigan, Minnesota, and Wisconsin. Coaches were eligible if they

had served as the head or assistant coach of a high school or club sport team in the past 12 months. An information sheet regarding the study was included in the e-mail sent to potential respondents, but participants were not required to sign a consent form due to the survey's anonymous nature. The estimated time of completion for the testing battery was 15 to 20 minutes, and participants received a \$5 Amazon gift card as compensation.

A total of 11 248 e-mails were distributed to high school and club sport coaches in the midwestern United States, with 1156 total responses (10.3% response rate). Of the total responses, 769 coaches completed the full questionnaire (66.5% completion rate, 6.8% effective response rate), and their data were used for data analysis. The effective response rates were 17.4% (497 fully completed questionnaires from 2852 e-mails sent) for high school coaches and 3.2% (272 completed questionnaires from 8396 e-mails sent) for club coaches. To try to improve the response rate among coaches, we re-sent e-mail invitations to potential participants after 7 and 14 days.

Measures

The primary measure for this study was the Youth Sport Specialization Perception Scale (YSSPS),¹⁹ which is a 25-item survey designed to examine the attitudes, beliefs, and values of sport stakeholders related to sport specialization. More specifically, the YSSPS is a tool that attempts to globally quantify how sport stakeholders perceive important elements related to specializing (eg, likelihood of maximizing talent, ability to create an enjoyable experience, pressure from coaches or parents) in a positive or negative fashion. For each item (eg, "All athletes should specialize in 1 sport by the time they reach high school"), participants rated their perception on a Likert-type scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*); higher ratings indicate a more favorable attitude regarding sport specialization. This scale was validated¹⁹ with 822 former athletes as a reliable global measure of youth sport-specialization perceptions (Cronbach $\alpha = 0.87$).

In addition to the YSSPS, participating coaches also reported demographic, educational, and sport-background characteristics. These consisted of age, sex, school size (for high school coaches), community size (for club coaches), years of coaching experience, whether they had received postsecondary sport education, whether they had received additional coach certifications not associated with postsecondary education, and their self-rating of their coaching quality compared with "the best coach [they] know who works with similar athletes" (rated from 1–7: 1 = *very low*, 4 = *about the same*, and 7 = *very high*).

Statistical Analysis

An independent-samples *t* test was conducted between the high school and club sport coach groups to determine whether their mean ratings on the YSSPS differed and calculate the effect size.²⁰ Additionally, 1-way analyses of variance were conducted for each of the 3 contextual characteristics that have been identified by earlier investigators^{4,13–16} as influential for athletes' patterns of sport participation (ie, team sex, school and community size, and sport type) to determine if perceptions of specialization differed by category within each coach group. Finally, a

Table 1. Participant Demographics

Variable	N or n (%) or Mean \pm SD			P Value
	Overall (N = 769)	High School (n = 497)	Club (n = 272)	
Coach sex				.76
Female	266 (34.6)	170 (34.2)	96 (35.3)	
Male	503 (65.4)	327 (65.8)	176 (64.7)	
Coach age, y	41.0 \pm 11.5	41.3 \pm 10.6	40.6 \pm 12.9	.46
Coach experience, y	12.04 \pm 6.50	12.32 \pm 6.48	11.54 \pm 6.49	.11
Self-rated coach quality (range, 1–7)	5.21 \pm 0.97	5.19 \pm 0.98	5.22 \pm 0.96	.70
Typical player age, y				<.001
14	72 (9.4)	1 (0.2)	71 (26.1)	
15	83 (10.8)	21 (4.2)	62 (22.8)	
16	287 (37.3)	210 (42.3)	77 (28.3)	
17	308 (40.0)	258 (51.9)	50 (18.4)	
18	19 (2.5)	7 (1.4)	12 (4.4)	

multiple linear regression was conducted for each group to explore if the coach's pertinent sport background and education characteristics (ie, age, sex, age of players, years of coaching experience, self-perception of coaching quality) predicted his or her perceptions of sport specialization. Statistical significance was set a priori at $P < .05$ (2 sided), and all analyses were performed using IBM SPSS (version 24.0; IBM Corp, Armonk, NY).

RESULTS

Participant demographics are presented in Table 1. In total, 769 coaches (females = 266 [34.6%], age = 41.0 \pm 11.5 years) completed the questionnaire, 497 of whom self-classified as high school coaches (64.6%) and 272 (35.4%) as club coaches. Furthermore, 451 participants (58.65%) coached female teams, 238 (30.95%) coached male teams, and 80 (10.40%) coached both. Club coaches were more likely to rate specialization as a positive, adaptive practice than their high school counterparts while exhibiting a medium effect size (club = 2.43 \pm 0.25, high school = 2.31 \pm 0.21; $t_{767} = 1.41$; $P < .001$; $d = 0.48$).

Descriptive results of high school and club coaches' ratings of sport specialization for each of the 3 contextual variables (team sex, school and community size, and sport) are presented in Tables 2 (high school coaches) and 3 (club coaches). Results of the one-way analyses of variance for coach group based on the 3 contextual variables are presented in Table 4. For the high school coaches, specialization perceptions differed by team sex (male = 2.31 \pm 0.21, female = 2.31 \pm 0.21, both = 2.39 \pm 0.21; $P = .04$) and sport (basketball = 2.26 \pm 0.20, soccer = 2.37 \pm 0.19, volleyball = 2.34 \pm 0.21; $P < .001$). School size did not affect specialization perceptions in the high school coach group (Class A [or 1] = 2.34 \pm 0.21, Class B [or 2] = 2.28 \pm 0.20, Class C [or 3] = 2.31 \pm 0.21, Class D [or 4] = 2.33 \pm 0.21; $P = .15$). For the club coaches, specialization perceptions differed by team sex (male = 2.39 \pm 0.20, female = 2.43 \pm 0.27, both = 2.53 \pm 0.36; $P = .03$) and sport (basketball = 2.37 \pm 0.26, soccer = 2.49 \pm 0.26, volleyball = 2.42 \pm 0.21; $P < .01$). However, community size was not a significant factor in these perceptions (<50 000 people = 2.39 \pm 0.26, 50 000–250 000 people = 2.45 \pm 0.23, 250 000+ people = 2.46 \pm 0.21; $P = .23$).

For the high school coaches, multiple linear regression did not yield a significant equation to predict specialization perceptions based on their background characteristics (ie,

team age, years of coaching experience, self-rated coach quality, coach age, coach sex; $F_{5,491} = 1.52$, $P = .18$, $R^2 = 0.02$). Similar results occurred for the club coaches ($F_{5,266} = 0.59$, $P = .71$, $R^2 = 0.01$).

DISCUSSION

Previous authors have broadly examined youth athletes' patterns of specialized or diversified sport participation,^{4,21–24} whereas recent researchers^{25,26} have begun to explore underlying attitudes toward this topic in high school athletes and coaches. However, we are the first to examine the perceptions of sport specialization between high school and club sport coaches using a validated perceptual scale of their attitudes and beliefs. Our most important finding was that, on average, club sport coaches were more likely than high school coaches to view sport specialization as favorable, as indicated by higher mean ratings for the YSSPS items and a moderate effect size.²⁰ Though club sports have previously been linked to a more professionalized climate of sport participation,³ the effect of this climate on coaches' perceptions of sport specialization has not been examined. In the current study, club coaches were more likely to view sport specialization as an adaptive, favorable pattern of participation, linked conceptually to a more elite-striving, professionalized atmosphere. Athletic trainers working in this club sport context can apply these results by monitoring how coaches' attitudes may manifest in heightened training loads, allowing for more proactive identification and treatment of overuse injuries.

We also examined whether team sex, sport, and school or community size affected each group's specialization perceptions. Female athletes have generally self-reported more specialized participation,^{13,14,27} though this has not been universal.²³ Our results indicated that team sex was a meaningful influencer of the coaches' perceptions of sport specialization; among high school and club coaches, those who coached both sexes rated specialization most positively relative to those who coached either males or females exclusively. Additionally, high school coaches of male teams rated specialization slightly more positively than coaches of female teams, whereas club sport coaches of female teams rated specialization more positively than coaches of male teams. Further investigation of the better perceptions of specialization of those who coach both male and female teams is warranted. The different specialization perceptions by team sex may affect the risk of negative

Table 2. Perceptions of Youth Sport Specialization of High School Coaches by Contextual Characteristics

Variable	n	Mean ± SD	F Value	P Value
Team sex			3.31	.037
Male	162	2.31 ± 0.21		
Female	283	2.31 ± 0.21		
Both	52	2.39 ± 0.21 ^a		
Sport			12.74	<.001
Basketball	203	2.26 ± 0.20 ^b		
Soccer	142	2.37 ± 0.19		
Volleyball	152	2.34 ± 0.21		
School size ^c			1.79	.147
1	129	2.34 ± 0.21		
2	110	2.28 ± 0.20		
3	140	2.31 ± 0.21		
4	118	2.33 ± 0.21		

^a Higher than for male or female ($P < .05$).

^b Lower than for soccer and volleyball ($P < .01$).

^c School size was listed from largest to smallest: 1 = Class 1 (or A): ≥885 students; 2 = Class 2 (or B): 398–884 students; 3 = Class 3 (or C): 194–397 students; 4 = Class 4 (or D): ≤193 students.

physical and psychosocial outcomes for athletes in their competitive contexts.

School size is an important factor in sport-specialization practices. Specifically, athletes from large schools were more likely to specialize and identify as specializers than those at small schools.⁴ We found that the average YSSPS score did not differ by school size among the high school coaches or by community size among the club sport coaches. Although the findings were not significant, we did observe a trend toward increasing YSSPS scores as population and high school size increased. This demonstrates that these pressures might stem from the youth athletes themselves. However, it is important to note that an individual coach may have significant influence on the practice behaviors of an entire team. More information is needed to address the effects of school and community size on the experiences and wellbeing of youth athletes, including in-depth participant testimony as to how this characteristic does (or does not, given our results) affect their decisions to specialize and subsequent outcomes.

The coach's primary sport influenced perceptions of specialization for both the high school and club sport groups. For both groups, the relative order of specialization perceptions (from low to high) was basketball, volleyball, and soccer. Traditionally, these 3 sports have been considered *team sports* (ie, sports in which performance occurs simultaneously with teammates rather than individually) and associated with *late specialization* (ie, sports in which peak performance occurs after physical maturity is reached).^{15,28} Historically, individual sports are associated with younger ages, the need for earlier peak performance, and thus, more focused specialization (eg, rhythmic gymnastics).¹⁶ However, sport specialization is now common in team-sport settings as well, and our findings align with this high prevalence.^{21,24} Future researchers should study additional sports with diverse characteristics and delve more deeply into basketball, soccer, and volleyball to determine how and why these environments lead to different perceptions of specialization and how this may lead to positive or negative outcomes for athletes.

Table 3. Perceptions of Youth Sport Specialization of Club Sport Coaches by Contextual Characteristics

Variable	n	Mean ± SD	F Value	P Value
Team sex			3.52	.031
Male	76	2.39 ± 0.20		
Female	168	2.43 ± 0.24		
Both	28	2.53 ± 0.36 ^a		
Sport			5.18	.006
Basketball	87	2.37 ± 0.26		
Soccer	81	2.49 ± 0.26 ^b		
Volleyball	104	2.42 ± 0.21		
Community size			1.454	.227
<50 000	42	2.39 ± 0.26		
50 000–250 000	109	2.45 ± 0.23		
250 000+	120	2.46 ± 0.21		

^a Higher than for male at the $P < .05$ level.

^b Higher than for basketball at the $P < .01$ level.

Additionally, the elements of coach education, experience, and demographic characteristics did not strongly predict perceptions of specialization, suggesting that each competitive context (high school or club) may have been the most salient influencer of these perceptions. Therefore, club sports appeared to prompt a cultural shift to better account for the potential drawbacks of specializing in 1 sport as noted in the previous sports medicine literature. Athletes in these settings should also be aware of the heightened expectations of specialized participation by those leading their teams. Researchers and practitioners in pediatric sports should continue to explore how these different group perceptions manifest in terms of participation behaviors and link to overall athlete health, wellbeing, and development.

One application of our study's findings is the apparent need for better coach education regarding the risks of specialized sport participation and associated training loads. Based on the mean ratings and variability of each coach group—as well as the respective subcategories of contextual characteristics—it is clear that some coaches view sport specialization positively. This is despite an accumulating base of empirical research that has illuminated the potentially adverse consequences of specializing in 1 sport, particularly in regard to sustaining an athletic injury.^{4–6} Regardless of the context, this increased risk would make more balanced participation in multiple sports more adaptive for a developing youth athlete. Future investigators should aim to enhance the structure and content of coach-education programs to reflect the research and recommendations regarding pathways of specialized or diversified participation to produce a stronger, richer understanding that can then be applied to future training programs.

Another important implication of the current study relates to ATs and sports medicine professionals. Our results underscore the importance of ATs having at least a cursory understanding of the context in which their athletes participate; clearly, the differences in coach perceptions detailed in this study would create different climates in terms of how participation is structured and viewed by athletes. For example, the heightened preference for specialization exhibited by club coaches in our sample would likely increase the risk of sustaining an injury and create a more pressurized environment for injured athletes

Table 4. Comparison of High School and Club Sport Coaches' Perceptions by Contextual Characteristics

Variable	High School (n = 497)					Club (n = 272)				
	Sum of Squares	df	Mean Square	F Value	P Value	Sum of Squares	df	Mean Square	F Value	P Value
Team sex	0.29	2	0.14	3.31	.037	0.42	2	0.21	3.52	.31
Sport	1.06	2	0.53	12.74	<.001	0.61	2	0.30	5.18	.01
School and community size ^a	0.23	3	0.08	1.79	.15	0.26	2	0.09	1.45	.23

^a School size was listed from largest to smallest: 1 = Class 1 (or A): ≥885 students; 2 = Class 2 (or B): 398–884 students; 3 = Class 3 (or C): 194–397 students; 4 = Class 4 (or D): ≤193 students.

to “push through” or return to competition early in comparison with high school athletes. This becomes more problematic when considering the lack of awareness high school and club coaches have of safe-sport recommendations.²⁹ Subsequently, club sport athletes may need extra attention from sports medicine practitioners for injury prevention and treatment as well as education regarding the potential risks stemming from the club sport context in general.

This study had several limitations. First, the collected data were self-reported, so the coaches were providing information about the climates they perceived they had created; from the current design, it is not entirely clear how these beliefs, attitudes, and values manifested in their practical settings, nor can the perceived climates of their athletes be fully understood through this design. Future authors should continue to explore the perceptions of coaches in the high school and club sport settings by linking them to previously described athlete outcomes associated with specialization, such as increased incidences of injury and burnout.^{5,9,30} Additionally, we surveyed coaches in only 3 sports (ie, basketball, soccer, volleyball), all of whom possessed similar characteristics; expanding the results to a wider variety of sports would be useful contextual information.

Lastly, it is important to note the overall low response rate for this study. Despite partnerships with the Michigan High School Athletic Association and various club organizations and sending 2 follow-up emails, our response rate was approximately 7%. This low response rate may have resulted in a selection bias in terms of the small proportion of coaches who chose to respond; thus, generalizing these findings to the larger, national population of coaches should be done with caution.

CONCLUSIONS

Club sport coaches were more likely to endorse a more professionalized, specialized approach to sport participation. Accounting for contextual categorical variables is important when considering athletes' participation patterns. Moreover, the nonsignificant linear regression equations for both high school and club sport coaches, based on selected coaches' background characteristics, indicated that the competitive context (ie, high school or club sports) may be the most salient influencer of coaches' perceptions of specialization. Future researchers should expand on these findings while linking them to previously identified physical and psychosocial outcomes. Finally, ATs and sports medicine practitioners should account for contextual differences when working with athletes and organizations in various settings.

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