

# Examining the Outcomes of Sport Specialization for Individual Athletes and High-Performance Volleyball in Alberta

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## ABSTRACT

Sport specialization consists of intense, year-round training or practice in a single sport at the expense of other sports. For young athletes, sport specialization has become a prerequisite for sport achievement, but studies have yet to explore the effect that sport specialization has on athletes' participation patterns. Thus, this study explored the following research question: what are the effects of sport specialization on the individual volleyball athlete in terms of: i) patterns of participation in sport and ii) consumption patterns in the sport industry (i.e., sports-related products and media). Interviews were conducted with current and retired volleyball players aged 18 to 30 in Calgary, Alberta. The findings showed that specialization in volleyball directly impacted an athlete's patterns of participation in volleyball and other sports. Participants indicated that their specialization years led to a specialized "mindset" and specialized knowledge. This unique analytical experience is one that influenced sport participation that few individuals acquire outside of the specialized athletic community. Many participants also articulated that specialized training led to an identity as a "volleyball player" which was associated with a reduced desire to participate in other sports recreationally. Many participants explained how specialization affected their socialization (both positively and negatively) and led them to foster connections in a virtual community. These findings provide valuable insight for the high-performance volleyball system in Alberta to evaluate the participation patterns in specialized volleyball training and implement changes that will benefit specialized athletes, high-performance volleyball, and the broader sports industry.

Sport specialization gives young athletes the opportunity to learn a singular sport from physical and theoretical practice, gaining an understanding of the technical and strategic aspects of the sport. For instance, in the sport of volleyball, a specialized athlete will train, practice, and play volleyball year-round at the expense of similar, specialized training in other sports such as basketball or soccer.

Specialization is a controversial topic in the sport industry and a popular topic in the academic study of sport. Recent research points to both positive and negative outcomes of specialization on athletes (Baker, 2003; Brenner, 2016; Committee of Sports Medicine and Fitness, 2000; Jayanthi et al., 2013; LaPrade et al., 2016; Malina, 2010; Merkel, 2013; Post et al., 2017). Specialization offers young athletes the

opportunity to achieve success in sport because it gives them an opportunity to develop their skills and compete at high levels that parallel their abilities, aspirations, and goals (Committee of Sports Medicine and Fitness, 2000; Jayanthi et al., 2013). However, key stakeholders such as parents, coaches, or recruiters can overwhelm young athletes with the expectation to achieve success, which can lead to decreased participation, desire, and commitment (Baker, 2003; Malina, 2010). Furthermore, few specialized athletes achieve success at the highest level of their sport or receive the economic and social rewards associated with success (Malina, 2010). As a result, more research is needed to investigate the impact sport specialization has on participation patterns in the sport industry.

This article addresses the effects of specialized volleyball training on athletes' participation patterns in volleyball and other sports. It begins with an examination of academic literature on sport specialization and highlights the need for qualitative research into the effects of specialization on how athletes participate in and consume sport. The primary investigator focused on volleyball in Calgary, Alberta, because of their proximity to the Calgary volleyball community and personal experience with specialization in the high-performance volleyball system in Alberta. Next, it outlines the methodological and analytic approach of semi-structured interviews of volleyball athletes. The analysis section is organized around two themes: the effects of specialized volleyball at the individual and community levels. At the individual level, some athletes left volleyball because of burnout, while others continued to participate in the sport as coaches, recreational players, or consumers. There are two reasons for the continued participation: 1) they felt they had an identity as a "volleyball player;" or 2) they had acquired "specialized knowledge" of volleyball, which both facilitated and interrupted their continued participation and engagement in volleyball and other sports. Several athletes also spoke about perfectionism, which they carried into their lives outside of sport, and that their fixed identity as a "volleyball player" posed problems when their playing careers

ended. Many athletes identified that specialization led to socialization with a community of volleyball players and that they continue to volunteer and mentor to "give back" to the community. Participants also spoke about maintaining connection to a virtual volleyball community through social media. The article concludes by addressing the research implications, limitations, and future research suggestions.

## Specialization

There are many definitions of sport specialization (Jayanthi et al., 2015). However, scholars generally agree that sport specialization consists of intense, year-round training or practice in a single sport at the expense of other sports (Jayanthi, et al., 2013; LaPrade et al. 2016). Specialization rates peak at age fifteen, with female athletes being considered more highly specialized than male athletes (Post et al., 2017). Key stakeholders (parents, coaches, or recruiters) in the sport industry consider sport specialization for young athletes to have both positive and negative outcomes.

Specialization can offer young athletes the opportunity to compete at a high level of competition and is considered a main pathway to future success and opportunities in sport (Committee of Sports Medicine and Fitness, 2000; Malina, 2010). Athletes and their parents are often motivated by potential collegiate scholarships or professional career opportunities. Many Olympic committees identify potential future Olympic athletes from specialization programs and provide specialized training after selection (Committee on Sports Medicine and Fitness, 2000). Alternatively, researchers have identified several negative outcomes of sport specialization. As Robert Malina (2010) states, elite training can situate young athletes as "pawns in a complex matrix" of parents, coaches, media, and the sport industry (p. 369). Research shows that multi-sports athletes report higher levels of enjoyment and are more likely to make it to world-class levels of sporting competition and experience longer athletic careers than specialized athletes (Brenner, 2016). Specialization exposes young athletes to potential physical, cognitive, and psychosocial risks

(Baker, 2003; Jayanthi et al., 2013; LaPrade et al., 2016; Malina, 2010; Post et al., 2017).

The potential physical, cognitive, and psychosocial risks of specialization can be categorized under *injury* and *burnout*. When it comes to injury, sport specialization can cause overuse injuries due to overtraining; Merkel (2013) reports that overuse is the reason for approximately half of the injuries suffered by young athletes. In terms of burnout, this can result from overtraining or lack of sleep (Brenner, 2016; Jayanthi et al., 2013; Post et al., 2017). According to LaPrade et al. (2016), burnout has consequences including decreased motivation, increased stress and anxiety, lack of enjoyment, and mood disturbances, which can lead athletes to withdraw from sport altogether. Each of these symptoms can be a result of parents and coaches who promote perfectionist behaviour and put intense pressures on athletes to perform. Specialization often requires young athletes to sacrifice time with family and social or educational opportunities, which can be detrimental to their mental health (Committee on Sports Medicine and Fitness, 2000). Repetitive, high-intensity training and performance requirements can also be incredibly frustrating and can lead to chronic stress (Malina, 2010).

The bulk of the research on sport specialization and injury or burnout stems from quantitative studies. Thus, there is a need for more qualitative research on the effects of early specialization that focus on athletes' experiences. Sports programs that primarily focus on early specialization are designed with the intended purpose of producing elite athletes (Brenner, 2016), which in turn profits from their continued participation in sport throughout their adult years. In 2018 operating revenue of sport and fitness centres across Canada totaled almost 4.23 billion dollars (StatCan, 2020). However, does youth sport specialization facilitate or interrupt participation? This study can help us understand if the sport industry is benefiting from early sport specialization, or if an alternative business model should be developed that facilitates continued participation at the individual and community levels.

## Methods

### *Participants*

This study received approval from the Human Research Ethics Board at Mount Royal University (HREB ID#101841). Since the focus was on the time during and around early sport specialization, the inclusion criteria for participants consisted of current and retired athletes aged 18 to 30. Athletes may have participated at the varsity, collegiate, or professional level. Seventeen individuals (9 women and 8 men) all of whom identified as volleyball athletes, participated in the study. Participants ranged in age from 18 to 29, (mean  $\pm$  SD: 23.47  $\pm$  3.20 years). Fourteen participants identified their ethnicity as White, while 3 participants identified as mixed ethnicity. Seven participants live with their parents, while 10 participants have moved away from home. Thirteen of 17 participants have achieved an undergraduate degree as their highest level of education, while 4 participants have completed a high school diploma. Table 1 outlines participants' specialization years in the sport of volleyball from start to finish.

Participants were recruited through organizations and varsity programs in the Calgary, Alberta volleyball community. These organizations and programs sent their members a recruitment email and posted recruitment posters at their facilities. The recruitment email defined the term "sport specialization," and asked if this defines their athletic experience in volleyball and if they agree to participate in the study. Recruitment was also conducted via social media (e.g., Twitter and Instagram). Participants were offered a \$10.00 gift card for their time. After selection, n=17 participants who consider themselves to be specialized volleyball athletes were included in the study.

### *Semi-Structured Interviews*

Semi-structured interviews were conducted with 17 participants, referred to in the analysis section by a number that was assigned to them in the order they were recruited (the first participant who contacted the primary researcher received the title "Participant 1" and so on). Interview questions were designed

Table 1. Specialization Years of Participants

Beginning of Specialization Years		End of Specialization Years	
Grade or Age	Number of Participants	Grade or Age	Number of Participants
Grade 10	1	Grade 12	1
Grade 11	2	Age 17	2
Age 12	1	Age 18	1
Age 13	4	Age 19	1
Age 14	3	Age 20	2
Age 15	2	Age 21	1
Age 16	2	Age 22	2
Age 18	1	Age 25	1
University	1	Age 26	1
		Age 27	1
		Still specializing	3
		Did not specify	1

with reference to The SAGE Handbook of Qualitative Research to stimulate descriptive answers from participants that focus on the how, why, and what behind the topic of each interview question (Brinkmann, 2018; Denzin & Lincoln, 2018). Sample interview questions include “What impacts did specializing in one sport have on you during your career?” and “Do you still participate in volleyball? If so, how often and in what ways?”. While participants were generally asked the same interview questions in the same order, the semi-structured nature of the interviews allowed participants to explore their youth sport and athletic experiences in the conversation (Brinkmann, 2018). Interviews were audio-recorded and took 31 minutes on average. At the end of each interview, participants were asked to respond to a series of demographic questions which included sex, age, ethnicity, and highest level of education completed. The primary investigator transcribed the interview recordings using the online software Otter.ai (2.3.41; Los Altos, CA, USA, 2019), which provided keywords that offered additional context to each interview and helped to identify the emergent themes discussed in the analysis section.

Participants were asked questions about their experiences with sport specialization, and current and future participation as well as consumption patterns regarding volleyball and other sports. Interestingly,

while gender is often a significant factor in how one experiences the sporting world, there were no significant differences in the experiences with specialization or participation patterns between those who identified as a man or a woman. Thus, gender is not discussed further in this analysis.

The analysis of the interview data was performed manually. The primary investigator familiarized themselves with the data by reading through the interview transcripts to determine several emergent themes. A colour-coded highlighting system was used to organize and chart the themes, and to link the relationships between various themes. The dominant themes established from this process include burnout, specialized knowledge, the volleyball identity, socialization, and giving back to the sport of volleyball. The lead author was supported through this process by the co-authors, who oversaw and supported the manual analysis of interview transcripts. Throughout the analysis process, the authors had numerous discussions with the purpose of analyzing and validating the emergent themes. The following section analyzes emergent themes at the individual and community levels. These themes point to a dynamic relationship between specialization, how athletes participate in sport, and the ways in which the sport industry influences (and is influenced by) specialization.

## Analysis: Individual Level

### *Burnout*

Specialized volleyball athletes reported different levels of what is considered as burnout, which is decreased motivation to participate in their sport (LaPrade et al., 2016). Some participants feel that specialization took over their lives while others said that they need some time away from volleyball. Participant 4 said, "I have no desire to play [volleyball] because I feel like I overdid it." Here, the participant experiences decreased motivation to play volleyball because of the overwhelming amount of time they invested in the sport. Other participants said that specialization led to their diminished interest in volleyball but are unsure what it is about specialization specifically. Some participants have barely touched a volleyball after their experience with specialization. Participant 10 said that taking time away from volleyball, "wasn't really like a conscious thing." Participant 12 explained that they were experiencing an overwhelming amount of volleyball and needed to take a break from the sport. Rather than burnout, Participant 10 and 12 just wanted a break from volleyball. In other cases, participants understood burnout as taking time away from volleyball or not pursuing a career in the sport at this time.

Many participants understood burnout as more than a feeling as though you have played "too much" volleyball. Stepping away from the sport wasn't because of the decreased motivation or lack of enjoyment for the sport of volleyball, rather the motivation to begin a new chapter in life (LaPrade et al., 2016).

When participants finish specializing in volleyball, they feel that they now have an opportunity to experience other sports in recreational settings. In some cases, however, participants simply lost interest in volleyball. Participant 10 said, "I guess I just didn't like the sport enough to... dedicate more of my life to it at the... cost of being able to achieve other things." In these examples, participants distanced themselves from volleyball because their life goals outweigh their athletic goals.

### *Specialized Mindset and Specialized Knowledge*

Many participants describe how specialized training in volleyball allowed them to develop two key aspects that affected their participation in volleyball: a "specialized mindset" and "specialized knowledge" of volleyball. The specialized mindset refers to the development of perfectionism that is carried outside of volleyball while specialized knowledge is the deeper understanding of the sport including rules, skills, and strategies that athletes who did not specialize may lack.

Many participants discussed how they cannot escape their desire to participate in volleyball because they never truly stepped away from the "specialization mindset" (Figure 1). Some felt as though specialization impacted their participation in recreational volleyball because they needed to be "perfect" in their execution of skills. Once they found success in specialized volleyball, it seemed to be more difficult to mentally position themselves as a "recreational" player. According to Participant 10:

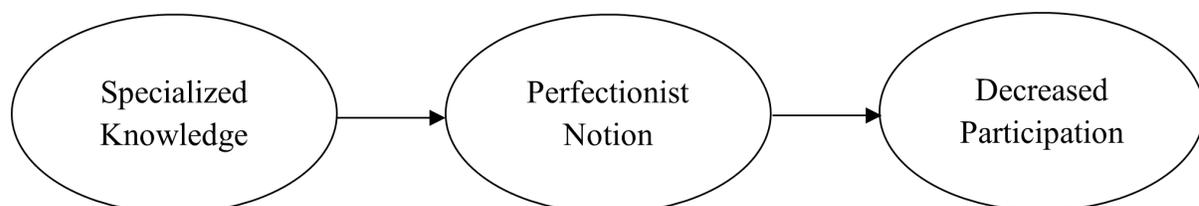


Figure 1. Perfection and Participation

"If you have some kind of success with specializing, it's kind of hard to go back to, like mentally and stuff... anything less than that... once you're used to always stepping on the court. And competing at a certain level, trying to... dial that back for myself is... difficult."

Thus, participating in a recreational setting can be difficult for athletes who feel that they must alter or scale back their play to fit a lower skill level.

Specialized knowledge and consumption patterns in volleyball are interdependent. Specialized knowledge corresponded with an increase of in-person or virtual (television or internet) consumption which in turn, led to further specialized knowledge. Several participants said they gained an "analytical" perspective from specialized volleyball, which created a unique experience when consuming live games or media coverage of the sport. Others said that they consumed volleyball to continue learning from other athletes or coaches. Participant 7 said "Everything I've learned as a volleyball coach is from other people." Participant 11 emphasized this idea by saying "I think it's important as a volleyball player, as someone who specializes in the sport, to learn the game better." Participant 8 explained that there is a unique skill set required to participate in the sport of volleyball while others reported that volleyball is complex, which makes it difficult for average individuals to follow. Participant 8 explained that the game of volleyball is as mentally engaging as it is physically, if not more. Participants commented on the complexity of volleyball in comparison to other sports, and how specialized knowledge is required to watch it. Participant 1 suggested that volleyball is completely different from other sports and provided the example of basketball, specifically comparing the tempos of the different games: "Basketball, the ball never drops and there's not as much downtime in between points. So, I feel like it's a lot... easier for just your average consumer to tune in and watch the game."

Volleyball is a unique sport that is constantly developing. Participants 8 and 11 both expressed their desire to watch volleyball because they enjoy seeing how the sport is evolving. Participant 17 echoed their thoughts by explaining that they consume volleyball because they like to see "how it's advancing." Each consumption practice depends on specialized knowledge.

Specialized volleyball athletes seem to enjoy and have an easier time consuming volleyball than someone who is not specialized in volleyball because of the specialized knowledge they have of the sport. However, specialized knowledge of volleyball can negatively influence athletes' consumption of and participation in volleyball because they understand what "good" volleyball looks like and can compare themselves to it. Some participants spoke about watching professional volleyball and finding that they compare themselves to the professional athletes. In particular, Participant 1 discussed the repercussions of watching higher level volleyball, specifically the negative impact it can have on them mentally because they did not measure up. Relatedly, when athletes see themselves playing volleyball on video, it can be difficult for them to separate their level of play from that of professional athletes.

### *Identity*

Participating in specialized volleyball gave the individual athletes access to a "volleyball player" identity. Constant interactions with the volleyball community in the form of training, socializing, and affirmation allowed athletes to maintain their volleyball identity. In a sense, specialized athletes have grown and trained in an environment where they are constantly working to satisfy their parents, coach, recruiter, or themselves. They are constantly searching for affirmation that what they are doing is purposeful, meaningful, and that they are doing it better than the average individual. Participant 11 said, "I do find my brain sometimes gets caught up in thinking that volleyball is your life... I find it's a trap you can get caught in... your identity is found in a volleyball player."

After their specialized career, many participants battled with their self-identity and finding their “purpose” in life. Participant 12 said:

“A lot of athletes... have that deep ridden self-identity where you’re just not good enough... and I feel like with specialization... that gets more and more ingrained and you really struggle to figure out who you are and who and what you’re actually good at, and that you are enough no matter what... I think that that’s probably one of the bigger downsides of sport specialization.”

Participant 12 also spoke about how specialized volleyball athletes are “always striving for a reason or a goal” and that they can struggle internally after they have accomplished their athletic goals. Athletes who have finished specializing in volleyball experience a strange period of their lives where they are in a foreign environment with less commitments scheduled. As Participant 12 said, the competitive nature of specialization affects the athlete’s “perspective around sport and who you are.” Many participants reported that they looked for any opportunity to add purpose to their lives, and that it takes time to come to terms with not having as many commitments as they used to.

Participants reinforced their identity as a volleyball player through the job-like atmosphere of specialized training, hard work, and competition. For most participants, volleyball became a job: the athlete is expected to be focused, push through difficult times, and persevere. Participant 5 said “You know, you’re an athlete, you’re not a quitter. Athletes push through... you just don’t quit.” However, this can be negative for specialized athletes during and after sport specialization. Participants felt that their volleyball identity and volleyball-specific skill set affected their participation in other sports. Participant 5 said “I would rather play volleyball than embarrass myself not knowing how to dribble a basketball.” Here, the athlete’s understanding of what it means to be proficient at one sport (volleyball) discourages

them from participating in another (recreational basketball), which ultimately impedes their participation in recreational sports because they would rather not experience mediocrity.

Specialized training gives athletes access to an athlete identity, through which many gain their competitive nature and carry it forward into the future, either consciously or unconsciously. Several participants transitioned into the working world with a competitive nature that affected certain aspects of their lives. Participant 13 said “[my job] is where I can really let my competitive side come out.” This participant spoke to the idea that their current role in the workplace granted them the opportunity to indulge their competitive side into something other than sport.

Specialized knowledge of sport that comes with specialized training can be both positive and negative for an athlete. Unfortunately for many athletes, specialized knowledge leads to a perfectionist mindset, suggesting that athletes train in a large capacity with the intention of perfecting the execution of skills and mental performance. When athletes train to be perfect, it becomes difficult to separate this notion from other aspects of their lives. As illustrated by Figure 1, specialized knowledge can develop the perfectionist notion, which may result in decreased participation by athletes. Athletes put pressure on themselves to be “perfect” in social participation settings (for example, recreational or intramural volleyball) and often feel decreased motivation to participate for fear of failure. These athletes would rather remove themselves from the sport than not be perfect in their execution of skills.

The high-performance volleyball system in Alberta needs to take into consideration the implications of the perfectionist notion on participation. When athletes fear mediocrity, sports like volleyball lose athletes. LaPrade et al. (2016) also identify how the psychosocial nature of burnout, including perfectionism, negatively affects participation. The high-performance volleyball system in Alberta, and other sport systems like it in Canada, can ensure that specialized training

does not lead to decreased participation (Brenner, 2007) by educating specialized athletes about perfectionist behaviour, which may help to increase long term participation rates of specialized athletes.

## Analysis: Community Level

### *Specialization, Socialization, and Community Building*

Specialized volleyball connects an athlete to a community and helps them make connections and friends, which affects their ongoing participation in the sport. Many participants recounted that a benefit of specialized volleyball was the long-lasting social groups they developed during their time in specialized volleyball. Other participants explained that their most meaningful relationships were developed in their specialization years.

Participants explained that their continued participation in recreational or intramural volleyball is due to their desire for social interaction. Several participants described their social lives as “simple” because they did not have to actively search for friends, rather friends were predetermined by their team. Participant 15 said “Whether it’s good or bad, your social life, your community, your... everything becomes the sport.” Recreational participation gives specialized athletes an outlet to continue to socialize with a community of friends with which they built lasting relationships.

While specialization can be beneficial for some athletes’ social lives, it can also be disadvantageous for others. The demands of specialization can mean that the volleyball community becomes an athlete’s only social network. In some cases, participants explained that their commitment to specialization resulted in trade-offs related to other aspects of their social life. For example, preventing them from the kinds of social well-being and health benefits associated with school. Some participants found that socialization was limiting because they felt as though they only had the sport of volleyball and their volleyball friends. For example, Participant 10 said:

“I struggled just because, like specializing... there’s not (sic) room for other things. So, if there’s nothing else to really lean on... if volleyball wasn’t going great one week or something, or if I wasn’t feeling as sharp or wasn’t motivated, if there wasn’t like other things to distract yourself with.”

Participants also suggested that although having a social group connected so closely to volleyball may seem beneficial, it was detrimental for socializing outside of volleyball. Some participants thought that specialization distanced athletes from friends who are not participating in the same sport as them. Another unfortunate reality is that when some athletes left volleyball, they lost their social group. For example, Participant 8 spoke to how they now have to “actively look for ways to make friends.” The reality is that specialization influenced socialization because it dictated the personal lives of young athletes. Unfortunately, participants believed that volleyball organizations do not understand the social impact that specialization has on volleyball athletes.

Another aspect of community that emerged in the interviews was that many participants used social media to stay connected to the larger volleyball community. Several participants said that they used social media platforms to consume sports like volleyball, especially condensed content, and as a way to “follow” teammates, coaches, professional teams, and athletes. Participant 12 said that they used social media (specifically Facebook) to watch live streams of games. Other participants utilized social media platforms such as Instagram and Facebook to watch highlights, stay up to date on sports, and be involved with the sports community. Thus, social media platforms connected volleyball athletes to a community outside of their immediate team and training environment. However, social media also presented a negative aspect of specialization as some athletes feel like they never have a break from volleyball. Participant 7 identified that social media prevented volleyball athletes from taking a “mental break” from volleyball. After intense volleyball training, some athletes return home

and look to their computers or phones for a mental break. However, Participant 7 suggested that their social media feeds are filled with volleyball content because their “social group is just volleyball”. Volleyball athletes consumed an overwhelming amount of volleyball content through social media and never truly got a break from specializing.

#### *Staying Connected by Giving Back to the Volleyball Community*

Many participants were committed to giving back to the sport of volleyball, especially to the young people that were currently specializing in the sport. Participant 13 said that giving back is “a way to take that specialization and everything that I learned from it, and apply it in a different way, working with all these athletes.” Interestingly, giving back was connected to specialized knowledge. Many participants felt that they can use their knowledge to positively impact the lives of young athletes. Their desire to give back to the sport of volleyball was rooted in their commitment to improve youth volleyball in culturally vital aspects, such as body positivity and coach-player relationships, and in competitive environments on and off the court.

Specialization in volleyball creates many opportunities for athletes to create a good reputation in the volleyball community. Several participants said their specialization had helped them find their passion, and that they can leave a legacy in the community through stewardship. Others said that their participation in specialized sport had created a reputation that provided the opportunity to give back. Participant 12 said, “[It] all comes back to you know how you want to be remembered and making the biggest impact on the world that you can and for me these avenues is (sic) what that is. That’s how I can help and give back the most that I can.” Specialized participation and experiences with high performance athletics are what the community depends on from coaches and mentors who want to give back to their sporting community.

## Discussion

### *Implications for the High-Performance Volleyball System and the Sport Industry*

In the sport industry, revenue is linked to the participation patterns of athletes. However, it is important to recognize the differences between supporting specialization that aims to produce elite athletes and creating the conditions that prevent specialized athletes from participating in sport after specialization. As this study has identified, there are many outcomes of specialization that influence participation patterns of specialized volleyball athletes at the individual and community levels. The high-performance volleyball system in Alberta should recognize the social pressures experienced by specialized athletes and create more opportunities for alumni to connect with each other and mentor current athletes.

Across the sport industry, high-performance sport systems need to come to a broad understanding that profitability is tied to all athletes. For starters, volleyball organizations and clubs can place greater emphasis on creating well-rounded athletes for the purposes of increasing their long-term participation patterns in volleyball and other sports. For instance, they can help athletes understand that perfectionism in volleyball need not translate to perfectionism in other sports. Furthermore, the sport industry benefits when athletes learn a range of skills in multiple sports and they become less likely to drop out of sports altogether due to a fear of failure. For instance, the sport industry would gain more recreational athletes if specialized athletes played a wider range of sports, either during or after the time of specialization. Thus, it is recommended that volleyball organizations introduce policies that encourage coaches and administrators to increase the number of sports young athletes participate in.

### *Limitations and Future Research Directions*

A limitation of this study was the relatively small sample size (17 participants) included, all of whom were connected to the volleyball community in Calgary, Alberta. This may limit the generalizability of

the findings to other jurisdictions and sports. This can be addressed in future studies by increasing the sample size, the geographical region, and by examining the effects of early sport specialization on athletes from different sports backgrounds. In addition, this study does not evaluate the effect that not specializing in sport has on athletes or the sport industry; future studies may wish to include a control group of athletes who did not specialize during their youth.

Future research may consider examining the role of gender on the outcomes of sport specialization. In addition, it will be important to investigate the role family plays in the process of youth sport specialization. Future research (performed as a longitudinal study) can investigate the consumption patterns of children with parents that experienced sport specialization. Finally, future research can investigate further the influence of social media on young athletes. As this study identified, social media use is a consumption pattern that is prominent in many youth specialized volleyball athletes. Designing a study around how social media platforms act as an extension of specialized training would be important for many high-performance sports across the sport industry.

## Conclusion

The sport industry is obsessed with specialization. To put it another way, the industry is synonymous with specialization. Across the industry, high-performance training systems create athletes who aspire to reach post-secondary or professional levels of sport participation. The findings of this study have identified themes at the individual and community level that build upon the existing literature on sport specialization. Notably, these patterns are interrelated in many aspects of sport specialization and detrimental to the success of the athletes in a sport like volleyball. Across the sport industry, high-performance sport training systems need to understand that the specialized athletes they are creating are impacted immensely by the system of specialization. This study challenges the current state of partici-

pation patterns in specialized volleyball training and encourages action from the sport industry to benefit its most impacted and valuable assets: specialized athletes.

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