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HONR 499

Fall 2024

Playing the Game: The Mental and Physical Impact of Organized Sports on Youth Athletes

Abstract

One of the most popular extracurricular activities for children is organized sports. Organized youth sports take many forms, and require different things from the youth athletes that participate in them. Given that there are other extracurricular activities present for children to participate in, different parties may wonder what the positive and negative impacts of youth sports are on youth athletes. To investigate this topic, I considered both the physical and mental impacts, as both are important for youth athletes. Extensive research determined that while there are a number of impacts that may influence a youth athlete's experience playing youth sports, each impact will differ among each individual. For example, while one athlete's parents may be a positive influence throughout that athlete's career, another athlete may have a negative experience with youth sports because of their parents. Similarly, not all factors will play a role for each youth athlete. The financial aspect of youth sports serves as a barrier for some athlete's, while that same variable has no impact for other athletes. Although there are multiple factors that impact a youth athlete's time playing organized sports, each factor will have a different impact on each individual athlete. (p. 18)

Introduction

When the school day ends, children are ready to do more with their free time than finishing their homework, and today's children have a plethora of options when it comes to

extracurricular activities. Musical theater, choir, school clubs, and community service organizations are just a few of the many ways children can involve themselves in activities beyond the classroom. However, there's one extracurricular activity that reigns supreme, and that is organized sports. From football to soccer, basketball, tennis, baseball, gymnastics etc., there is no shortage of ways children can occupy themselves athletically. The National Council of Youth Sports indicates that roughly 60 million children in the United States are currently participating in some form of youth sports (National Council of Youth Sports). This does not include the vast number of children who don't play in an organized league. Youth sports are a cornerstone for the lives of children, with many participating well into adulthood. Adding in the prospect of college and professional sports participation only adds to the allure of playing a sport as a child. As a result, many children spend a lot of their time growing up playing organized sports. Even if they only play for fun, participation in organized sports can have a profound effect on youth athletes, both good and bad. This review of the literature aims to explore these various impacts, and assess how they influence youth athletes both physically and mentally.

Mental Impacts

A. Introduction

To understand the mental impact that organized sports has on youth athletes, it is important to note that what might be a positive impact for one youth athlete may be a negative impact for another. Youth athletes encounter a variety of different people throughout their time participating in sports. Each person they encounter during their time participating in youth sports can greatly influence their overall experience both positively and negatively. This section of the review will examine how coaches, teammates, and parents can positively impact youth athletes mentally, and how these same three factors, as well as finances and social media, can play

negative impacts on youth athletes mentally. This review aims to examine how these individual factors impact youth athletes mentally in both a positive and negative manner. However, it is necessary to state that different factors will have different impacts on each individual youth athlete.

B. Positive Mental Impacts

Coaches

Looking at the relationship between coach and athlete, coaches have a major role in growing youth athletes athletically and mentally. In fact, a coach's teaching style can have a major impact on the development of the player, and whether that player enjoys their time playing their sport. Coaches who employ a “coach-autonomy” approach to coaching often have better relationships with their players, with the youth athletes developing within their sport as a result (Cho 5-7). “Coach-autonomy” refers to coaches showcasing that they value athletes’ self-initiation and involvement in independent problem solving, including coaches’ positive feedback and democratic decision making (Cho 1). Similarly, team efficacy is enhanced as a result of positive coach-athlete interpersonal relationships. Research done by Trbojević and Petrović similarly highlights the importance of autonomy as a “basic psychological need,” along with competence and relatedness (42-43). Sufficiently meeting these needs results in more motivated athletes, and a generally more satisfied athlete. This idea is supported by research from Wekesser et al., as their research similarly describes the importance of coaching behaviors on the youth athletes that they coach (495-498). Specifically, exuding supportive behaviors results in youth athletes continuing to play their sport throughout their childhood. This shows that positive coaching behaviors result in youth athletes being more satisfied with their playing experience, as well as feeling as though their needs mentally are being met.

Teammates

Another important component of the youth sporting experience are the teammates that every youth athlete plays with. Youth athletes meet a range of different people throughout their time playing organized sports, with some athletes playing with the same people throughout their time playing their sport. Research indicates that the relationships formed between youth athletes and their teammates can have a multitude of positive impacts on the youth athletes themselves. For example, athletes who had stronger relationships with their teammates reported a stronger sense of belonging, as well as greater personal and social development as a result of their relationships (Bruner et al. 212-213). On top of this, athletes reported a better sense of setting goals for themselves, and taking initiative toward what they desired. A lot of these results develop thanks to the strong relationships made between youth athletes and their teammates. Building these relationships are crucial to team and personal success. Weiss et al. explain that creating a positive environment leads to a more cohesive dynamic between teammates when completing various tasks and interacting with each other socially (880-883). Being able to successfully work toward a common goal results in more satisfied athletes thanks to their relationships with their teammates. Still, every youth athlete is different in their own way socially. Navigating the different behaviors of each teammate is one of the many ways in which teams bond, and how individuals begin to identify with their teammates. Benson and Bruner found that youth athletes who display more prosocial behaviors have a stronger social identity within their team when compared to youth athletes who displayed more antisocial behaviors (124-126). Being a part of a sports team requires prosocial behavior in one form or another, which leads to stronger relationships between teammates. As youth athletes continue to grow

their relationships with their teammates, they will in turn feel more satisfied mentally thanks to these bonds.

Parents

Once practice ends, the game clock hits zero, and team-bonding experiences wrap up, youth athletes go back home to someone who will be present the entire time they play in organized sports. The parents play a major role in the development of their child as an athlete, and when done right, can impact their child in a positive way. Fathers especially take interest in their child's youth sports experience, as they want to ensure their child is in the best situation possible to succeed as an athlete. Fathers take interest in youth sports because, as some scholars theorize, youth sports is a space where fathers can take control while meeting their individual parental expectations (Coakley 157). While there is a lot of room to go wrong in terms of overall impact on their child, fathers can have a positive impact on their child's athletic experience. Research by Gottzén and Kremer-Sadlik showcases the idea that youth sports provides an opportunity for men to bond with their child in a unique way, and that finding a balance between pushing their child to perform and still providing emotional support is imperative to a healthy relationship between the two (658-661). A healthy relationship between a young athlete and their father can enhance that athlete's experience playing organized sports. This puts some major responsibilities on the father to support their child in the best way possible.

However, it is not only the father who holds this responsibility. Both the mother and father play important roles in determining a young athlete's experience playing sports. In research by McCabe et al., it was determined that the way parents act when spectating their children determined their child's behavior (4). If a young athlete perceived their parents engaging in positive or negative behaviors, they would respond by acting in a comparable manner toward

their teammates, opponents, coaches, and referees (4-8). This further highlights the impact parents have on their child's perception of youth sports. Furthermore, research suggests that parents are involved in their child's sporting experiences in different ways. Knight et al. explore the different ways in which parents are involved in their child's sport, and how each parent's "role" impacts their child's overall experience (173-176). Their research found that each parent has a different set of values when it comes to their involvement in their child's participation in sports. Ultimately, it's difficult to treat parents as one "group," since each parent varies drastically in their approach to their children's sports participation. If parents engage in prosocial, positive behaviors around their child in a sporting context, the child will associate that positive behavior with a positive attitude of their own when they play in organized sports.

C. Negative Mental Impacts

Coaches

Not all coaches are positive motivators. It's no secret that a youth athlete's coach has a large impact on the experience of a youth athlete for better or for worse. Some coaches conduct themselves in ways that hurt the athletes they coach. Research from Stein et al. suggests that athletes preferred more positive, informational feedback and less punishment, nonreinforcement feedback from their coaches (488). Even though athletes prefer this style of feedback and instruction from their coaches, a number of coaches will remain that punish their players, and give them non-constructive feedback. Similarly, research suggests that authoritative, controlling styles of coaching contributed to feelings of anxiety, dejection, and anger among elite youth athletes, with these athletes also less likely to feel excitement and happiness related to their sport (Monfared et al.). The evidence suggests that controlling and dismissive coaches generally have negative mental impacts on the athletes they coach.

Teammates

While youth athletes can create bonds with their teammates that last a lifetime, they can also have negative experiences with teammates that make their experience playing organized sports negative. Research indicates that when youth athletes perceive antisocial behavior from their peers, task cohesion generally decreases (Al-Yaaribi and Kavussanu 2015). This could mean that these athletes don't feel that they are trusted by their teammates, or that they have an important role in the team. Nonetheless, this contributes to a negative experience for youth athletes while playing organized sports. To go further, some youth athletes may face bullying throughout their time playing organized youth sports. A study indicated that one of the most common places where bullying occurred in a youth sports context was in the changing room, while cyberbullying was one of the least prevalent (Ríos et al.). The changing room was a common place for comments to be made regarding athletic performance and the body, which resulted in devastating effects on those bullied. Bullying in this setting had negative psychological impacts on these youth athletes, and led to issues beyond their time playing organized sports.

Parents

While the impact of parents can be positive, it's important to take a closer look at how parents can negatively impact their child mentally during their time playing sports. After all, the parents are the ones driving their kids to games, paying for them to play, and making sure they are succeeding before, during, and after play. With that said, each parent has their own approach to their involvement in their child's sporting activity. Certain research categorizes parents into different levels of involvement and evaluates how the experiences of youth athletes are impacted by these levels. Research done by Morbée et al. showcased that "extreme" styles of parenting,

which include controlled or distant approaches, led to higher levels of frustration, demotivation, disengagement, and anxiety (1002). This research also displayed that a more intermediate approach resulted in the youth athlete's needs being met, while remaining motivated to continue in the sport they are playing (999). This research shows that a certain level of involvement is required for the success of youth athletes. Research done by Lisinskiene et al. adds on to this idea by stating that the degree and form of involvement is important to enabling an enjoyable youth sporting experience (56). They also state that the degree of involvement is fluid, meaning their child has different needs as they progress in their youth sports careers. If this balance is not adequately met, youth athletes will be less likely to trust their parents when it comes to sports, less likely to communicate, and more likely to feel alienated as a result of their parents' involvement. Like mentioned previously, it is difficult to categorize parents into certain groups, even if they display similar traits. One "controlling" parent is different from the next "controlling" parent, which leads to different outcomes in regard to a youth athlete's mental state.

Finances

While there are ample opportunities for children to play organized sports free of charge, the reality for most families is that they will be spending money out of their pocket to fund their child's involvement in youth sports. Data from 2017-2018 indicated that families spend an average of \$693 per child for one sport per year for each child that participates in organized sports (Hyde et al. 208-210). Hyde et al. also mention that some families may spend more than \$2000 per year for certain sports (210). As the level of competition increases, families could end up paying more for their child's participation in sports. At Arsenal Colorado, a youth soccer club in Fort Collins, academy players (the highest level offered at Arsenal Colorado) who play with

the club year-round can expect to pay roughly \$2,135 per year in registration fees (“Fees and Age Divisions”). This figure does not include personal costs such as individual equipment, travel fees, and other miscellaneous expenses. While there is little literature regarding the cost of high-level youth sports on a larger scale, it’s clear that a plethora of families across the country are paying thousands of dollars for their child to play organized sports.

In research done by Dunn et al., there is a relationship between the parent’s financial investment towards their child’s sports participation and that child’s perceived pressure from said parent (295). This highlights that finances play an important role in the mental state of youth athletes, especially when it pertains to the influence of financial stress on the parents. This idea is further built upon when looking at the socioeconomic status of these same parents. Overall, low-income parents tend to value the potential for their child to earn a collegiate athletic scholarship more than high-income parents (Kroshus, 4-13). While there isn’t concrete data regarding how many total players in “elite leagues” move on to play collegiate athletics, one soccer club estimates that 70% of their ECNL (an elite soccer league) players go on to play Division 1 college soccer, while 90% will play college soccer generally (Dolan). This adds additional pressure to youth athletes who come from low-income families, as they are also playing sports for the opportunity to attend college, which may not be possible otherwise. When considering the additional stresses faced growing up in a low-income family, it’s easy to see why the financial cost of playing sports can negatively impact the mental health of certain youth athletes.

Social Media

With the rise of social media among the youth, more and more children are posting to social media. In a lot of cases, youth athletes are posting their game highlights to their personal

social media profiles for the world to see. Some athletes even create profiles dedicated to their prowess in hopes to increase their brand, as well as showcase their talents to college recruiters. While there is ample amount of research into this topic, the impact it is having on young athletes is real and can be significant. The subjective well-being and levels of anxiety in young athletes are shown to increase as a result of passive social media use (Zhang et al. 7). This can occur thanks to their teammates or even other young athletes who interact with them online. Social media exposes young athletes to a multitude of stressors, leading to increased levels of anxiety. In elite youth athletes, social media is important for building their personal brands and interacting with fans online. Andrea Geurin found in her study of olympic-level youth athletes that little training had been provided to these young athletes (256-259). This led to challenging situations that had to be faced by children who did not know how to handle these conflicts. This resulted in increased anxiety and stress in the youth athletes.

D. Conclusion

Overall, it is important to remember that many factors will impact youth athletes in different ways. What induces anxiety for one athlete may instead induce happiness in another. Coaches can be positive role models for some youth athletes, while others can be the reason those athletes hate the sport altogether. Parents can serve as great motivators or demotivators. These feelings are not black and white, and can change given a variety of elements within the youth athlete's environment.

Physical Impact

A. Introduction

While all youth sports provide physical stimulus in one way or another, each sport requires different physical characteristics from its athletes. Some sports, like long-distance

running and swimming, require athletes to exercise for a prolonged period of time. Other sports require athletes to exert strength and power during shorter periods of exercise, such as in basketball and football. Some sports require a mixture of both endurance and strength, making the physical impact of those sports all the more complex. This is to state that while this portion of the review aims to examine the positive and negative physical impacts of organized sports on youth athletes, the impacts vary based on the specific sport each child participates in. This review will examine how aerobic fitness, bone health, and weight management are positively impacted by organized sports participation. The review will then examine how knee injuries, concussions, the relative age effect, and overtraining can negatively impact youth athletes during their time participating in organized sports.

B. Positive Physical Impacts

Aerobic Fitness

Aerobic fitness is defined as the body's ability to deliver oxygen to the muscles, as well as its ability to use that oxygen to produce energy during muscular contraction. This process is important not just during exercise, but also during the functions of everyday life. Generally, the better the body completes this process, the healthier that individual will be. Research conducted by Li et al. found that any intervention in youth sport-related physical activity resulted in improved aerobic fitness in sedentary children (10). This includes sports where athletes are sedentary during moments of play. This finding is not surprising, as increased movement should lead to improved aerobic fitness no matter the intensity or duration of that physical activity. Further research finds that, on average, youth athletes have a higher VO₂ max and lower blood lactate compared to their untrained peers (Armstrong et al. 856). VO₂ max and blood lactate are quantitative measures of aerobic fitness, and the research says that physical activity, especially

physical activity performed in sports, leads to improved aerobic fitness. Youth athletes can even maximize their improvements in aerobic fitness by specializing their training to what they need. By adapting individual training plans, youth athletes can maximize their improvement in aerobic fitness by training what they need as opposed to blindly training for their sport (Fitzpatrick et al. 1368). For example, a goalkeeper in soccer has different physical requirements than a midfielder on the same team. Therefore, specialized training leads to maximized adaptations for both athletes, even though they are playing the same sport. Participation in youth sports leads to improved aerobic fitness among youth athletes. This in turn leads to improved health, well-being, and an increased quality of life among these children.

Bone Health

A child's participation in organized sports comes at a time when their bodies are constantly developing. As a result, the physical requirements of sports can impact a child's physical development, which can lead to changes that are felt throughout their lives. One key physical attribute that is positively affected by participation in sports as a child is overall bone health. Adolescence is an important time for bone development, and it is generally accepted that weight-bearing activity is beneficial for bone health (Marriott et al. 111). Within this specific study, the researchers found that in general, participation in elite athletics in childhood through young adulthood resulted in lasting benefits for bone health. The specific benefit highlighted was bone density. In additional research on this topic, Tveit et al. found that long-term retired athletes not only had higher bone density than their non-participating peers (by 0.5 SD) but they also had a 60% lower risk of sustaining a bone fracture than those who did not participate in sports. It is important to note that in this study, the observed athletes continued their participation in organized sports well beyond their childhood, which impacts the relevance of the findings to the

topic of youth sports. Nonetheless, this research still highlights that participation in organized sports, as well as weight-bearing physical activity in general, has a positive effect on bone health throughout the lifespan. In a country where it is estimated that 10 million people over the age of 50 have osteoporosis, with 43 million people being at risk because of low bone mass, the implications of these findings are important (Wright et al.). Bone health is a concern down the lifespan, as bone loss becomes more prevalent as a person ages. Therefore, understanding that participation in organized sports as a child can offset some of this bone loss highlights the positive impact that organized sports have on youth athletes. This is an outcome that has implications throughout the athlete's life, showing how organized sports can positively impact a young athlete.

Weight Management

Childhood obesity has become a hot topic in recent years. With the residual effects of the COVID-19 pandemic, the rise of the digital age, and an increased reliance on unhealthy foods, more children are obese than they ever have been before. Research indicates that in the past 3 decades, obesity rates have doubled in children and tripled in adolescents (Sanyaolu et al.). This statistic is concerning, as obesity can lead to a host of health problems during a crucial part of this child's life. While there is no singular answer to this nationwide issue, participating in organized sports is an effective strategy to curb this growing problem. In a study conducted on boys and girls aged 11-17 years old, the researchers found that higher levels of physical activity resulted in lower levels of body mass index (BMI) among these youths (Walker et al.). BMI is a metric that is calculated using an individual's height and weight and is an easy way to gauge whether that individual is underweight, normal weight, overweight, or obese. The higher the number, the higher the percentage of body fat that individual is likely to have. This study finds

that children who engage in physical activity, like organized sports, have a lower BMI. Further research confirms this finding, as Slater et al. found that increased physical activity leads to decreased rates of obesity (500). Slater et al. also discussed how without the proper channels for children to participate in physical activity, rates of obesity will increase (501). Increasing access to organized sports leads to a decreased rate of obesity among children, which will lead to a healthier population overall.

C. Negative Physical Impacts

Knee Injuries

While an athlete may suffer from a multitude of different injuries from their time playing sports, one of the most common injuries any youth athlete can face is an injury to the knee. Whether it is an injury to the ligaments, menisci, or tendons of the knee, this part of the body is especially susceptible to injury thanks to the complex nature of its usage. Sudden turns, twists, falls, and overuse are all reasons why a youth athlete might suffer a knee injury. These kinds of injuries can keep an athlete off of the field for as little as a few days or as long as a couple of years depending on the severity. In the short term, research finds that knee injuries result in decreased knee extensor and flexor strength months after the injury is sustained (Le et al. 160). This matters not only for the athletic performance of the athlete post-injury but also for the quality of their daily life. Decreased knee flexor and extensor strength lead to simple activities such as standing from a sitting position and walking up the stairs a challenge. Knee injuries also have an impact well after the athlete is injured. Research shows that youth who suffer from a sports-related knee injury have more negative health-related outcomes related to osteoarthritis 3-10 years after they are injured (Whittaker et al.). If the injury impacts the growth plate, it is also possible that the injury can disrupt bone growth. This is a significant outcome that shows

that these injuries have implications far beyond the immediate period in which they are sustained.

Concussions

One of the major concerns regarding sports, especially in high-contact sports, is the prevalence of concussions. It's estimated that 1.6 to 3.8 million people suffer from concussions due to sporting activity each year, with the majority of those being children (Daneshvar et al.). Brain injuries are scary, which is why so much is done to try and prevent these injuries from happening in the first place. The United States Soccer Federation banned headers for players below 10 years old for this purpose. Coaches are trained on how to prevent these injuries, referees are taught how to deal with a potential head injury if the situation arises, and athletic trainers are instructed to act fast in the case of a head injury. In the case an athlete does get a concussion from youth sports participation, their recovery is crucial to prevent long-term neurocognitive detriments. During the recovery process, research shows that not only do sports-related concussions result in lower sleep quality, but lower sleep will also result in worsened symptoms as well. Prioritizing sleep during the recovery from a concussion is extremely important to a full recovery and an eventual return to sporting activities. Research also indicates that returning to normal sporting activities may decelerate the recovery process (Manikas et al.). Just like any other injury, rest is important to ensure reinjury doesn't occur, which is particularly important with injuries to the brain. After the initial injury and recovery, research indicates that children who deal with concussions are more likely to face emotional and behavioral difficulties than their non-injured peers (Gornall et al.). This in turn affects performance in school and sports, as well as the relationships they have with their peers. The

impacts of this injury can have implications that reach far beyond the time of injury, as difficulties with emotion and behavior can lead to a host of mental health issues.

Relative Age Effect

The physical development of each child is not linear. For example, the height and weight of each 11-year-old in the United States will vary drastically from one another. This presents a unique challenge in youth sports, especially in sports that rely more on physicality. As a result, children born earlier in a specific selection period tend to be more physically and mentally developed than their younger peers, resulting in a disadvantage for children born later in a selection period. This phenomenon is known as the relative age effect (RAE), which is a problem prevalent in most organized youth sports. A study conducted observing the youth academy of a soccer team revealed that about 50% of the players on the team were born in the first quarter of the year, with 75% of the players being born in the first half of the year (Huertas et al. 2850). This finding shows that as the level of competition increases, the children who end up playing on elite teams tend to be on the older side of the age bracket. This results in younger players being turned away from these opportunities simply because they were born later in the selection period. Further research by Cobley et al. confirms this finding, as they discovered that RAE is prevalent across multiple youth sports and that younger athletes in the selection period were less likely to participate in organized sports under the ages of 14, were less likely to participate in elite teams in the 15-18 age bracket, and were less likely to become elite athletes as a result of their age (249). These findings show that being born at a certain time of the year can lead to disadvantages during participation in youth sports. Furthermore, for athletes born later in the selection period, research suggests that those athletes are more susceptible to injury than their older peers (Stracciolini et al. 272). The evidence shows that not only are athletes born later in a certain

selection period at a disadvantage when it comes to team selection at the higher levels, but they are also at a disadvantage when it comes to getting injured. Despite these negative implications, it appears that little is being done to curb the effects of RAE on youth sports participation.

Overtraining

For competitive youth athletes, the drive to be the best athlete possible often extends beyond scheduled team practices and games. This means extra athletic work individually, with teammates, or with sport-specific trainers. When you compound this additional training along with mandatory team training, you increase the chance that a youth athlete is trained beyond what they can handle. While there isn't much research that concretely states how many youth athletes suffer from overtraining syndrome, some studies suggest the number could be as high as 35% (Brenner et al.). Overtraining syndrome happens when an athlete doesn't adequately recover after repetitive intense training, and can include fatigue, decline performance, and potential injury (Goolsby). Evidently, trying to increase the total amount of reps a youth athlete does can actually have a negative impact on their development. Furthermore, if an athlete doesn't adequately recover and suffers from overtraining syndrome, it can lead to the athlete requiring longer rest periods as well as professional help from doctors in some cases (Pelka et al. 353). While the number of athletes that will deal with this are in the minority, it is still a prevalent issue that will only get worse as organized youth sports continue to get more competitive.

D. Conclusion

In conclusion, there are a multitude of positive and negative impacts of youth participation in organized sports. Despite this, their overall impact on an individual athlete will vary. While most sports require aerobic exercise in one form or another, some utilize it much more than others. Even though most sports contain weight-bearing exercise that is beneficial for

bone health, sports like swimming aren't weight-bearing at all. Although participation in youth sports is helpful in weight management among youth, there will still be obese athletes who compete in organized sports. Similarly, not all negative impacts affect one athlete in the same way as another. Not all sports have the knee twisting and turning in a way that can cause a meaningful injury. Likewise, certain sports carry little to no risk of head injury whatsoever. Additionally, not all youth athletes will feel the impact of the relative age effect. Understanding the specific nature of a youth athlete's environment is necessary for ensuring that their experience is maximized in a way that develops them physically in a positive manner.

Conclusion

To conclude, it's clear that there are many variables that contribute to a youth athlete's experience playing organized sports. Mentally, a youth athlete can be impacted by a number of people in their sporting environment. These people have a significant influence on this youth athlete's experience, as their actions can determine whether a child has positive or negative feelings about playing sports. As was displayed, the presence of certain variables can have a positive or negative impact on children playing organized sports. Similarly, a large number of variables can decide whether a youth athlete is positively or negatively impacted physically in their time playing organized sports. While these variables are present for a lot of youth athletes, they may not be present for all youth athletes. Each child's experience with organized sports will be different. Their skill level will vary drastically, and the people who they meet will too. Not one child's experience is the same as another's, and it is important to remember that when parents sign their children up for youth sports. What should remain the same for all youth athletes is that they receive a positive experience both mentally and physically, as the impacts of their participation in organized sports will last a lifetime.

Works Cited

- “About US - National Council of Youth Sports.” *National Council of Youth Sports.*” 13 Sep. 2023, ncys.org/about-us/.
- Al-Yaaribi, Ali, and Maria Kavussanu. “Teammate Prosocial and Antisocial Behaviors Predict Task Cohesion and Burnout: The Mediating Role of Affect.” *Journal of Sport & Exercise Psychology*, vol. 39, no. 3, 2017, pp. 199–208, <https://doi.org/10.1123/jsep.2016-0336>.
- Armstrong, Neil, et al. “Aerobic Fitness and Its Relationship to Sport, Exercise Training and Habitual Physical Activity during Youth.” *British Journal of Sports Medicine*, vol. 45, no. 11, 2011, pp. 849–58, <https://doi.org/10.1136/bjsports-2011-090200>.
- Benson, Alex J., and Mark W. Bruner. “How Teammate Behaviors Relate to Athlete Affect, Cognition, and Behaviors: A Daily Diary Approach within Youth Sport.” *Psychology of Sport and Exercise*, vol. 34, 2018, pp. 119–27, <https://doi.org/10.1016/j.psychsport.2017.10.008>.
- Brenner, Joel S., et al. “Overuse Injuries, Overtraining, and Burnout in Young Athletes.” *Pediatrics*, vol. 153, no. 2, Feb. 2024, pp.1-10, <https://doi.org/10.1542/peds.2023-065129>.
- Bruner, Mark W., et al. “Ties That Bond: Youth Sport as a Vehicle for Social Identity and Positive Youth Development.” *Research Quarterly for Exercise and Sport*, vol. 88, no. 2, 2017, pp. 209–14, <https://doi.org/10.1080/02701367.2017.1296100>.
- Cho, Sun-Lyoung, and Woo-Yeul Baek. “Coach-Autonomy Support and Youth Sport Team Efficacy Mediated by Coach-Athlete Relationship.” *Social Behavior and Personality*, vol. 48, no. 2, 2020, pp. 1–9, <https://doi.org/10.2224/sbp.8362>.

- Coakley, Jay. "The Good Father: Parental Expectations and Youth Sports." *Leisure Studies*, vol. 25, no. 2, 2006, pp. 153-163, doi: 10.1080/02614360500467735.
- Cobley, Stephen, et al. "Annual Age-Grouping and Athlete Development: A Meta-Analytical Review of Relative Age Effects in Sport." *Sports Medicine (Auckland)*, vol. 39, no. 3, 2009, pp. 235–56, <https://doi.org/10.2165/00007256-200939030-00005>.
- Daneshvar, Daniel H et al. "The epidemiology of sport-related concussion." *Clinics in sports medicine* vol. 30,1 (2011): 1-17, vii. doi:10.1016/j.csm.2010.08.006.
- Dolan, Chase. "ECNL: Positives, Negatives of Fastest Growing Youth Soccer League in America." *Common Sense*, 22 March 2024, <https://woottoncommonsense.com/20930/sports/ecnl-positives-negatives-of-fastest-growing-youth-soccer-league-in-america/#:~:text=On%20the%20girls'%20side%2C%20ECNL,play%20college%20soccer%20in%20general>. Accessed 1 December 2024.
- Dunn, C. Ryan, et al. "The Impact of Family Financial Investment on Perceived Parent Pressure and Child Enjoyment and Commitment in Organized Youth Sport." *Family Relations*, vol. 65, no. 2, 2016, pp. 287–99, <https://doi.org/10.1111/fare.12193>.
- "Fees and Age Divisions." *Fort Collins Soccer Club*, <http://www.soccerfortcollins.org/Competitive/FeesAgeDivisions>. Accessed 12 October 2024.
- Fitzpatrick, John F., et al. "Dose-Response Relationship between Training Load and Changes in Aerobic Fitness in Professional Youth Soccer Players." *International Journal of Sports Physiology and Performance*, vol. 13, no. 10, 2018, pp. 1–1370, <https://doi.org/10.1123/ijsp.2017-0843>.

Geurin, Andrea N. “Social Media Education Provided by National Governing Bodies of Sport: An Examination of Practices for Youth Olympic Games and Olympic Games Athletes.”

Communication and Sport, vol. 11, no. 2, 2023, pp. 238–64,

<https://doi.org/10.1177/21674795211053627>.

Gornall, Alice, et al. “Behavioral and Emotional Difficulties after Pediatric Concussion.” *Journal of Neurotrauma*, vol. 37, no. 1, 2020, pp. 163–69, <https://doi.org/10.1089/neu.2018.6235>.

Gottzén, Lucas, and Tamar Kremer-Sadlik. “Fatherhood and Youth Sports: A Balancing Act between Care and Expectations.” *Gender & Society*, vol. 26, no. 4, 2012, pp. 639–64,

<https://doi.org/10.1177/0891243212446370>.

Huertas, Florentino, et al. “Relative Age Effect in the Sport Environment. Role of Physical Fitness and Cognitive Function in Youth Soccer Players.” *International Journal of Environmental Research and Public Health*, vol. 16, no. 16, 2019, pp. 2837–2856,

<https://doi.org/10.3390/ijerph16162837>.

Hyde, Eric T., et al. “Disparities in Youth Sports Participation in the U.S., 2017–2018.”

American Journal of Preventive Medicine, vol. 59, no. 5, 2020, pp. e207–10,

<https://doi.org/10.1016/j.amepre.2020.05.011>.

Knight, Camilla J., et al. “Influences on Parental Involvement in Youth Sport.” *Sport, Exercise, and Performance Psychology*, vol. 5, no. 2, 2016, pp. 61–78,

<https://doi.org/10.1037/spy0000053>.

Kroshus, Emily, et al. “Socioeconomic Status and Parent Perceptions about the Costs and Benefits of Youth Sport.” *PloS One*, vol. 16, no. 11, 2021, pp. e0258885–e0258885,

<https://doi.org/10.1371/journal.pone.0258885>.

- Le, Christina Y., et al. “Comparing Short-Term Knee-Related Quality of Life and Associated Clinical Outcomes Between Youth With and Without a Sport-Related Knee Injury.” *Clinical Journal of Sport Medicine*, vol. 33, no. 6, 2023, pp. 157–65, <https://doi.org/10.1097/JSM.0000000000001146>.
- Li, Tingyu, et al. “Effects of Recreational Small-Sided Games from Different Team Sports on the Improvement of Aerobic Fitness in Youth Sedentary Populations: A Systematic Review.” *Heliyon*, vol. 9, no. 11, 2023, pp. e22041–e22041, <https://doi.org/10.1016/j.heliyon.2023.e22041>.
- Lisinskiene, Ausra, et al. “Understanding Adolescent Parent Interpersonal Relationships in Youth Sports: A Mixed-Methods Study.” *Sports (Basel)*, vol. 6, no. 2, 2018, pp. 41-58, <https://doi.org/10.3390/sports6020041>.
- Manikas, Vicky, et al. “Impact of Exercise on Clinical Symptom Report and Neurocognition after Concussion in Children and Adolescents.” *Journal of Neurotrauma*, vol. 34, no. 11, 2017, pp. 1932–38, <https://doi.org/10.1089/neu.2016.4762>.
- Marriott, Amelia, et al. “Participation in Elite Sport in Youth and Its Impact on Lifelong Bone Health.” *Osteology*, vol. 4, no. 3, 2024, pp. 111–19, <https://doi.org/10.3390/osteology4030009>.
- McCabe, Liam P., et al. “Monkey See, Monkey Do? Exploring Parent-Athlete Behaviours from Youth Athletes’ Perspective.” *Frontiers in Sports and Active Living*, vol. 5, 2024, pp. 1-8, <https://doi.org/10.3389/fspor.2023.1292812>.
- Morbée, Sofie, et al. “Identifying Profiles of Parental (de)Motivating Behaviors in Youth Sports: A Multi-Informant Approach.” *Motivation and Emotion*, vol. 47, no. 6, 2023, pp. 990–1006, <https://doi.org/10.1007/s11031-023-10040-3>.

- Murdaugh, Donna L., et al. “Assessment of Sleep Quantity and Sleep Disturbances During Recovery From Sports-Related Concussion in Youth Athletes.” *Archives of Physical Medicine and Rehabilitation*, vol. 99, no. 5, 2018, pp. 960–66, <https://doi.org/10.1016/j.apmr.2018.01.005>.
- Pelka, Maximilian, et al. “Understanding Underrecovery, Overtraining, and Burnout in the Developing Athlete.” *Routledge Handbook of Talent Identification and Development in Sport*, 1st ed., vol. 1, Routledge, 2017, pp. 348–60, <https://doi.org/10.4324/9781315668017-25>.
- Ríos, Xènia, et al. “‘I Gave Up Football and I Had No Intention of Ever Going Back’: Retrospective Experiences of Victims of Bullying in Youth Sport.” *Frontiers in Psychology*, vol. 13, 2022, pp. 819981–819981, <https://doi.org/10.3389/fpsyg.2022.819981>.
- Saeid Yarmohamadi Monfared, et al. “Investigating the Relationship between Leadership Style of Coaches and Sports Emotions of Athletes Participating in Bahrain 2021 Para-Asian Youth Championship.” *Journal of New Studies in Sport Management*, vol. 4, no. 2, 2023, pp. 765–77, <https://doi.org/10.22103/jnssm.2023.20770.1152>.
- Sanyaolu, Adekunle et al. “Childhood and Adolescent Obesity in the United States: A Public Health Concern.” *Global pediatric health* vol. 6 2333794X19891305. 1 Dec. 2019, doi:10.1177/2333794X19891305.
- Slater, Sandy J., et al. “The Association between Community Physical Activity Settings and Youth Physical Activity, Obesity and BMI.” *Journal of Adolescent Health*, vol. 47, no. 5, 2010, pp. 496–503, <https://doi.org/10.1016/j.jadohealth.2010.03.017>.

- Stein, Jonathan, et al. "Influence of Perceived and Preferred Coach Feedback on Youth Athletes' Perceptions of Team Motivational Climate." *Psychology of Sport and Exercise*, vol. 13, no. 4, 2012, pp. 484–90, <https://doi.org/10.1016/j.psychsport.2012.02.004>.
- Stracciolini, Andrea et al. "The Relative Age Effect on Youth Sports Injuries." *Medicine and Science in Sports and Exercise*, vol. 48, no. 6, 2016, pp. 1068–74, <https://doi.org/10.1249/MSS.0000000000000868>.
- Trbojević, Jovana, and Jelica Petrović. "Satisfaction of Basic Psychological Needs of Young Serbian Female Athletes: The Role of Coach and Teammates." *Exercise and Quality of Life*, vol. 12, no. 1, 2020, pp. 37–45, <https://doi.org/10.31382/eqol.200605>.
- Tveit, M., et al. "Exercise in Youth: High Bone Mass, Large Bone Size, and Low Fracture Risk in Old Age." *Scandinavian Journal of Medicine & Science in Sports*, vol. 25, no. 4, 2015, pp. 453–61, <https://doi.org/10.1111/sms.12305>.
- Walker, John L., et al. "Physical Activity And Sedentary Behaviors Vary According To Fitnessgram Bmi Classification In Youth: 2182 Board #101 May 28 2:00 PM - 3:30 PM." *Medicine and Science in Sports and Exercise*, vol. 52, no. 7 Suppl, 2020, pp. 582–582, <https://doi.org/10.1249/01.mss.0000680560.88108.19>.
- Weiss, Maureen R., et al. "A United Front: Coach and Teammate Motivational Climate and Team Cohesion among Female Adolescent Athletes." *International Journal of Sports Science & Coaching*, vol. 16, no. 4, 2021, pp. 875–85, <https://doi.org/10.1177/17479541211006905>.
- Wekesser, Meredith M., et al. "Coaches' Impact on Youth Athletes' Intentions to Continue Sport Participation: The Mediation Influence of the Coach–Athlete Relationship."

International Journal of Sports Science & Coaching, vol. 16, no. 3, 2021, pp. 490–99,
<https://doi.org/10.1177/1747954121991817>.

Whittaker, Jackie L., et al. “Health-Related Outcomes after a Youth Sport–Related Knee Injury.”
Medicine and Science in Sports and Exercise, vol. 51, no. 2, 2019, pp. 255–63,
<https://doi.org/10.1249/MSS.0000000000001787>.

Wright, Nicole C et al. “The recent prevalence of osteoporosis and low bone mass in the United States based on bone mineral density at the femoral neck or lumbar spine.” *Journal of bone and mineral research : the official journal of the American Society for Bone and Mineral Research* vol. 29,11 (2014): 2520-6. doi:10.1002/jbmr.2269.

Zhang, Weipeng, et al. “Risks of Passive Use of Social Network Sites in Youth Athletes: A Moderated Mediation Analysis.” *Frontiers in Psychology*, vol. 14, 2023, pp. 1-11,
<https://doi.org/10.3389/fpsyg.2023.1219190>.