

## The Negative Effects of Sport Specialization on Youth-Aged Athletes

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### Abstract

Sport specialization is happening at younger and younger ages every year. Many parents and coaches believe it is the only way for the young athletes to earn a scholarship or that professional contract later in life. Contrary to popular belief, studies have shown early specialization to cause burnout, depression, and increased risk of injury.

Youth sports, defined as sport for athletes aged 4-17, is facing declining participation, rising costs, and unqualified coaches (Bogage, 2017). Youth today are being put on fields in flashy uniforms and into situations in which injury is becoming more and more prevalent. Higher training volumes have consistently been shown to increase the risk of overuse injury in multiple sports (DiFiori et al., 2014).

More and more, parents and youth athletes continue to look at youth sports competition and practice as the road to success. Some youth and/or parents are driven by the opportunity for a professional contract (Malina, 2010). Many youth compete in multiple one-sport seasons, which have included school seasons, traveling seasons, camps, and private sessions.

Why have so many parents, coaches, and athletes fully committed to this endless barrage of sport specialization? Is it all for the glory of the game or is there a motivation behind the chaos? The push to start children sooner in hopes of scholarships and future financial security has continued to fuel the youth sports fire. This has resulted in increased pressure to begin high-intensity training at young ages (DiFiori et al., 2014). This frenzy of competition, practice, and game filled weekends has put stress on more than parents' minds and pocketbooks.

The future of youth sports lies in the hands of those who are willing to make a change and adapt. Variations in cognitive development, as well as motor skills, should be considered when setting goals and expectations for young

athletes (DiFiori et al., 2014). Youth, for the most part, believe the adults in their lives know what is best for them.

The purpose of this paper is to identify some of the negative effects of sport specialization with youth-aged athletes.

### The Trend of Sport Specialization

A current trend in youth sports is for student athletes to specialize in one particular sport. This specialization can begin with children as young as four years of age (Jayanthi, et al., 2013). Sports specialization in youth is defined as engaging in a single sport for at least three seasons a year at the exclusion of other sports (American Academy of Orthopaedic Surgeons, 2018a) and is common in a wide variety of sports.

Youth sports has experienced a paradigm shift over the past two decades. Gone are the days filled with pick-up basketball games and free play along with sand lot baseball and do-overs. The substantial psychosocial impact parents have on their children's sports experience is shown in that 54.7 percent of parents encouraged their children to specialize in a single sport (American Academy of Orthopaedic Surgeons, 2018a). Even though there are positive reasons for children to specialize in a sport at a young age (Christianson & Deutsch, 2012), many believe the negative outcomes outweigh the positive. The long-term outcome of early sport specialization can be damaging to both the physical and emotional development of the young athletes and in some arenas is considered a public health concern (Bell et al., 2019).

Early specialization can occur in both individual and team sports. Examples of individual sports include gymnastics, golf, swimming, and tennis. These sports often involve private lessons. Team sports in which youth might specialize at an early age are hockey, basketball, volleyball, and baseball. These team sports are often not part of community recreation programs; but rather, are usually club and travel teams that have paid coaches and involve membership fees and traveling expenses. In both

individual and team sports youth are exposed to competition at an early age.

Intense year-round training in a single sport has become common. Factors such as pursuing a scholarship, becoming a professional athlete, or the intense desire for talent recognition by parents, coaches, and media appear to fuel interest in specializing in a single sport. However, the odds of excelling to the elite level in a specific sport do not appear to show any correlation with early sports specialization. A study of 35,000 highly trained youth athletes selected to train in Russian sports found that only 0.14% reached high-level status. A similar study of elite and near-elite athletes found that the successful elite athletes actually specialized at a later age and trained less in their childhood (Myer et al., 2016).

This push towards sports specialization in youth athletes is a cause for concern due to the increasing numbers of burnout and overuse injuries. Burnout occurs as a result of chronic stress that causes an athlete to stop participation in a previously enjoyable activity and overuse injuries occur due to repetitive submaximal loading of the musculoskeletal system when there is not enough adequate rest to allow for training adaptations to occur. Monitoring the athletes' workloads and preparedness for their sport may decrease these risks (Difiori, et al, 2014).

The physical demands and overuse of specific muscles and joints is another reason why specialization in sports is not the direction to go if one is seeking improvement in long term skill development. For example medical personnel are seeing an increase in some of the more severe overuse injuries in younger patients, including a sharp increase in the number of young athletes requiring a reconstructive elbow surgery commonly known as Tommy John surgery (Yeo, 2017). Compared to athletes who participated in the widest variety of sports, youth who specialized the most were 81 percent more likely to experience an overuse injury (Rapaport, 2018).

### **Too Much Too Soon**

Overuse injuries among youth continue to rise and it is no surprise as more and more parents, organizations, and coaches are pushing sports specialization (Field et al., 2019). Young athletes' bodies all develop at different rates. When high intensity repetitive activities are added during the maturation phases of bones and muscles, it results in injury. Most young athletes are not in tune enough with their bodies to start to realize the signs that come with overuse.

What before was considered a traditional sports season of two to three sports a year with summers off, has now turned into a year-round rollercoaster of one to two sports with little to no breaks in between. This big push to be involved in sports year-round has created stress among parents who do not want their kids to be left behind (Benson & Strand, 2014). Although many understand the need for rest, it is often overlooked by parents and

undertrained coaches. Athletes should have at least two to three months off per year from their particular sport during which they can let injuries heal, refresh the mind, and work on strength, conditioning, and proprioception in hopes of reducing injury risk (Brenner, 2007).

Many coaches in youth sports are not trained properly to provide the correct tiered training, which is required for growing athletes. When well-intentioned, but undertrained adults become competitive, the results often effect the young athletes negatively. Good coaches understand the musculoskeletal developmental stages that youth go through. One of the goals in sports injury prevention should be to develop less vulnerable movement patterns (Soligard, 2008). Coaches have the opportunity to teach correct skills and to allow the athletes an appropriate amount of time to practice those skills to avoid injury.

In the physical education realm, the focus in youth activity is on skill development, physical literacy, and lifetime activity. How is it then when students leave the school and head to the court or field they are expected to perform skills at such a higher level when their body has not yet developed? Many times parents and coaches forget that it is good for children to be well rounded and to have an understanding of many skills and concepts rather than one. DiFiori (2010) stated that parents and coaches should be educated regarding the concept of sport readiness.

### **Risks of Sports Specialization**

The National Council of Youth Sports reported that 60 million children from the ages 6 to 18 years old participated in some form of organized athletics, with 44 million participating in more than 1 sport (Difiori et al, 2014). Close to 30 percent of youth athletes were specialized in their sports according to a study sampling nearly 1200 students (Myer et al., 2016). With the number of young athletes potentially specializing in sports, parents and coaches need to be concerned about the risks that accompany sport specialization.

A college scholarship is a great thing that should be thought of as a wonderful achievement. Some might say a childhood is also very important. If a child thinks that their childhood was wasted on sports that injured them, they probably will have more lasting issues that will be much more detrimental in the long run than not getting a college scholarship would have been.

Trauma from injury and resentment can be powerful things that all parents should consider when looking to sign up for that next traveling team. Parents and coaches must ensure athletes' opinions are taken into consideration as well. If an athlete complains of nonspecific muscle or joint problems, fatigue, or poor academic performance, be alert for possible burnout. Questions pertaining to sport motivation may be appropriate (Brenner, 2007).

## Physiological Risks

Overuse injuries are more likely to occur during the adolescent growth spurt. Physiologically, the physes, apophyses, and articular surfaces in skeletally immature athletes in a rapid growth phase are far less resistant to tensile, shear, and compressive forces compared to either mature bone or more immature prepubescent bone (Caine et al., 2006). Having a lack of lean muscle tissue, an increase in joint hypermobility, and disparities between growth and strength are also factors. Higher training volumes have consistently been shown to increase the risk of overuse injuries in several different sports as well (Difiori et al., 2014).

Historically, it has been problematic to separate the identified risks of intensive training based on high weekly volumes of training from the independent risks of sports specialization in overuse injuries. More recently it has been shown that high training volume brings its own risk for injury, and that increased exposure has a linear relationship to adjusted injury risk in high school athletes (Meyer et al., 2015). Specifically, exceeding 16 hours per week of all sports participation, regardless of how many sports, seems to carry the greatest risk. Additionally, athletes who participate in more competitive levels or higher overall volumes of training have an increased incidence of injury.

A lack of diversified activity and appropriate neuromuscular skill learning leads to repetitive use of the same parts of the body which fosters injuries. Year-round exposure to a single sport is potentially one of the primary reasons for injury risk. In youth baseball pitchers, athletes who pitched greater than eight months per year were at greater risk for shoulder and elbow surgery (Myer et al., 2015).

## Psychological Burnout

With the amount of attention young athletes receive through social media regarding athletic accomplishments, scholarships, and professional contracts, is there any wonder why there is psychological burnout. A perception exists among many parents that to have an edge toward achieving success, children need to specialize in a single sport. Tiger Woods was the epitome of this example; he was introduced to golf early on, participated in a highly structured training regimen, and has become arguably one of the greatest golfers of all time.

Furthermore, AAU or club teams are constantly pushing young athletes to specialize year round to develop exceptional skills and provide exposure to the recruiting process. These athletes are getting pushed and pulled from all different directions on what they should be doing with their lives (Myer et al., 2016). This all increases the psychological risk of burnout and depression.

Talent development research on young athletes demonstrates that professional-style practices are likely not optimal for fostering talent development (Till & Baker, 2020). Enjoying the activities within a sport and having

intrinsic motivators are key to maintaining participation in young athletes. A study of junior tennis players indicated that the burned-out players had less input into their training and sport-related decisions which resulted in athletes who were more withdrawn and less psychologically prepared to cope with the high stresses of their sport (Gould, et al., 1996).

Fear of injury or reinjury is also a major factor in psychological burnout. Specializing in a sport does not allow one's body to recover from the stresses that a sport puts on it because one is constantly engaging in the sport. Young injured athletes who have specialized may need strategies and techniques to adequately address their issues if they aim to return directly back to the sport in which they got injured. Additionally, some of these athletes may have poor coping skills to deal with psychological aspects of the injury. Educating these specialized athletes and identifying inaccurate information about the injury and rehabilitation process may help to reduce the emotional stress that accompanies the injury (Myer et al., 2015).

## Emotional Burnout

Along with psychological burnout, another negative effect of early specialization is the impact it has on a child's social and emotional growth. When playing on elite club teams athletes can miss out on relationships with peers who are involved in school or recreational sport organizations.

The emotional stress caused by having the pressure of parents and self can be detrimental to an athlete's mental health. Parental stress can come, for example, from parents pressure on coaches and pressure from parents to be better than other players. Generally speaking, many parents have unrealistic expectations that their children will play collegiately or professionally. As a result, they are inclined to invest in private lessons, trainers, or personal coaches to help their young athlete. With this investment of time and resources, there can be unwritten, indirect pressure from parents to specialize (American Academy of Orthopaedic Surgeons, 2018b).

Private lessons, membership in clubs/select teams, travel expenses, equipment expenses, competition and tournament fees are a few of the financial responsibilities of the youth/parents involved in early specialization of a sport. The U.S. youth sports economy, which includes everything from traveling to private coaching, has grown 55 percent since 2010 into a \$15 billion market.

More than 60 percent of American families spend \$1,200 to \$6,000 per child annually on youth sports; 20 percent of families shell out \$12,000 annually per child (Rosen, 2018). Financial responsibility can, in some cases, cause a burden on the family's overall financial health which can then lead to additional stresses on the family. These stresses will ultimately cause stress on the young athlete which will be detrimental to their performance in the sport that has caused the financial strain to begin with.

The possibility of earning scholarships and visibility for recruiting are often reasons why parents are motivated to put their children in private lessons and join specialized traveling teams. The possibility of earning a college scholarship resulting from early specialization is slim. According to the National Collegiate Athletics Association (NCAA, 2019), only about two percent of high school students earn athletic scholarships for college.

Specializing in sports at an early age may also cause the young athlete to miss their “calling” in another sport. At such a young age one does not know how his or her body will grow and develop as it matures. The young athlete may realize at too late of an age that his/her body type or skill level is not suited to the sport in which they have specialized. This realization could come too late to learn, participate in, and reach their full potential in another sport for which they may be more suited. The opportunity to build relationships with others and learn from other coaches/mentors is also greatly reduced when this happens.

There are nearly eight million students currently participating in high school athletics in the United States. More than 480,000 compete as NCAA athletes, and just a select few within each sport move on to compete at the professional or Olympic level. Knowing this, is early specialization in youth sports the best route for these young athletes (NCAA, 2019)?

### Conclusions

Children should be provided numerous opportunities to participate in free unstructured play to improve motor skill development. In doing so, children can be encouraged to participate in a variety of sports to influence the development of diverse motor skills and find out what sports they enjoy.

A simple guideline to follow when it comes to hours of sports per week is no more than their age with a maximum of 16 hours per week. If athletes do happen to be going over those hourly ranges, they need to be closely monitored for indicators of burnout, overuse, injury, or potential decrements in performance due to overtraining. A periodized strength and conditioning program along with integrative neuromuscular training (INT) is something that all children can benefit from to help prepare them for the demands of competitive sports participation. Those children who do specialize in a sport should plan times to isolate and focus on INT to enhance their diverse motor skill development that they would have gotten from participating in other sports to reduce injury risk factors (Myer et al., 2016).

Children who specialize early in their lives in a single sport may show less age-appropriate sports skills, especially when they do not participate in as much unstructured free play as their peers. The parents and children alike are hypnotized with the lure of athletic scholarships and professional contracts that forces them to jump to specialization. This despite the fact that only 0.2%

to 0.5% of all US high school athletes make it to the professional level.

Sports specialization can lead to many things including an increased risk of burnout, depression, and increased risk of injury. Studies of athletes indicate that the tactic of early single-sport specialization is not a guarantee for success, and in some cases, can be detrimental to long-term achievement and is associated with increased injury risk. In fact, athletes who participated in more than one sport while growing up are a lot more likely to go on to play a sport at the collegiate level, have less chance of serious injuries and burnout, and fewer regrets.

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