

Risks Associated with Sport Specialization in High School Athletes

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In recent years, there is an increasing trend toward intense sport-specialized training (sport specialization) among youth and high school athletes. Sport specialization is often characterized as intense, high-volume training in a single sport at the expense of participation in multiple sports.

In response to this trend, numerous national and international medical and sport organizations have released position statements warning against early sport specialization due to the potential for psychological stress and overuse injury. These organizations also called for more research to determine the scope of specialization in various ages and sports, the attitudes that lead to specialization and the increased risk for injury that is associated with sport specialization.

Scope of the Problem?

Determining how many high school athletes actually specialized in a sport was difficult since there was limited, if any, information regarding the issue. Recently, a sport specialization scale has been developed to better classify athletes as low, moderate or high based on their behavior, rather than classifying by the number of sports in which an athlete might participate. The scale consists of three “yes” or “no” questions (Figure 1).

Figure 1. Sport Specialization Scale

Have you quit another sport to focus on one sport?	YES NO
Do you consider your primary sport more important than your other sports?	YES NO
Do you train more than eight months a year in your primary sport?	YES NO

Scores are calculated by a “yes” response being 1 point and a “no” response being 0 points. Specialization level is classified by scores 0-1 being low specialization, 2 being moderate specialization and 3 being high specialization.

Through a series of studies using these questions, we now know that 10 to 38 percent of teenagers who play sports are classified as highly specialized. Females are more likely to specialize compared to males, and school size influences specialization rates with

larger high schools more likely to have large numbers of specialized athletes. In addition, some of the highest rates of specialization are in the most popular high school sports of basketball, soccer and volleyball. Finally, 50 percent of high school athletes who specialize in a single sport also participate on a club team in the same sport.

Sport Specialization and Injury

The association of sport specialization and risk of injury has not been well understood for many years. Early research showed that baseball pitchers, tennis players and female runners with specialization behaviors sustained more injuries than their peers. While useful, these studies did not fully capture the full association of sport specialization and increased risk of injury.

In 2016, the NFHS Foundation funded a study to obtain more complete data regarding sport specialization and risk of injury in high school athletes. Researchers found that specialized high school athletes in a wide range of sports were more likely to report sustaining previous lower extremity (foot, ankle, knee, hip) injuries.

Equally important, however, the research team followed these same athletes over the course of an entire school year and recorded all the injuries sustained in every sport in which they participated. They found that moderately specialized athletes had a 50 percent increased risk and highly specialized athletes had an 85 percent increased risk of injury compared to the athletes with a low level of specialization.

While this increased risk was more pronounced for overuse injuries such as tendonitis and stress fractures, it was also found in ankle sprains. Further, the increased risk of injury was present regardless of the sport and the number of competitions they participated in during the previous 12 months.

Sport Specialization Attitudes

As the risks of specialization have become more well-known, parents and coaches have grown increasingly concerned about sport specialization. Recent surveys have found that the majority of parents and coaches are highly concerned about specialization. So, why is specialization still increasingly common?

While parents and coaches both believe that specialization increases the risk of injury, the majority of youth athletes (68%) believe specializing will increase their chances of making a college team. Even more concerning, 82 percent of youth athletes believe specialization is necessary just to make their high school team. Specialization is not just about getting a college scholarship, it's about just getting playing time at their high school with their peers. On the other hand, surveys of high school coaches indicate that the overwhelming majority (94.4%) of coaches believe that playing a variety of sports will increase a student's athletic ability.

Clearly, there is a large gap between the beliefs of youth athletes and the beliefs of parents and coaches regarding the benefits and consequences of specialization. Thankfully, recommendations exist to help reduce the risks of sport specialization. These recommendations are that youth athletes should not participate:

- In a single sport for more than eight months per year
- In more organized sports per week than their age (i.e., a 16-year-old athlete should not participate in more than 16 hours of organized sport activity per week)
- In multiple leagues of the same sport at the same time

However, these recommendations are not well known. Recent research indicates that between 75 and 80 percent of parents and coaches are not aware of these recommendations.

Moving Forward

The increased trend for sport specialization in high school

athletes is a growing concern. Everyone involved in youth sports and high school sports needs to make a concerted effort to communicate safe sport participation recommendations to parents and young athletes. Administrators need to stress that while athletes may want to specialize, doing so increases the risk the athlete will sustain an injury.

Further, high school coaches play an influential role in the sport participation decisions made by high school athletes. Therefore, providing coaches with the knowledge to educate parents and athletes regarding the risks associated with sport specialization can improve sport safety by reducing immediate injury risk. More importantly, however, it will also protect against the lifelong effects that a sports injury sustained during adolescence can have on physical activity and health in adulthood. **HST**

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