

One-Sport Focus Puts Young Athletes at Higher Risk for Injury

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Are You Giving Patients the Best Advice?

Some young athletes show early talent in—and, often with the encouragement of their parents, become passionately devoted to—a single sport. However, little is known about the risk for injury in intense single-sport training or how this risk is affected by growth rate in young athletes.

Earlier this year, the *American Journal of Sports Medicine* published a study of young athletes aged 7-18 years that presented data that shed light on this issue for the first time.^[1] It revealed that injured athletes tended to be older (14.1 years vs 12.9 years; $P < .001$). The injured athletes also tended to spend more hours per week in organized sports (19.6 vs 17.6; $P < .001$).

Sports medicine doctors are frequently called upon to provide guidance to young athletes, but traditionally, the guidance is based solely on their own clinical experience. "The intent of the study was to give evidence-based recommendations," explained lead author Neeru A. Jayanthi, MD, medical director of primary care sports medicine at Loyola University Stritch School of Medicine in Maywood, Illinois, in an interview with Medscape.

In addition to documenting age and hours of practice as risk factors for injury, Dr Jayanthi and colleagues found that young athletes who specialize in a single sport are at increased risk for injury and serious overuse injury. In contrast, growth rate was not related to injury risk.

Rapid Growth, Training Hours Linked to Injury Risk

The findings provide evidence that clinicians can include in their conversations as they counsel young athletes and their parents on the injury risks associated with sports.

In their case-control study, Dr Jayanthi and colleagues evaluated athletes who had experienced an injury and sought care from a sports medicine specialist.^[1] They compared these children with healthy controls.

The majority (65%) of the injuries documented in the study were overuse injuries. In gymnasts, for example, overuse injuries occur in the back and wrists, whereas in baseball, the injuries occur in the shoulder and elbow.

The investigators calculated growth rate from measurements taken at two locations by two providers. Although growth rate did not appear to be a factor in overuse injuries, athletes with apophyseal injuries (AIs) tended to have a higher mean growth rate than athletes with other types of injuries (6.0 vs 4.8 cm/yr; $P = .08$).

"Our study found no differences in growth rates between injured and uninjured athletes," wrote the authors in their conclusion. "However, to our knowledge, this is the first study to specifically evaluate an association between measured growth rate and AIs in a clinical population of young athletes. Our findings suggest that growth plate tissue may be more vulnerable to injury during periods of rapid growth."

"Hours per week of exposure is always the biggest risk," emphasized Dr Jayanthi. Typically, young athletes spend 10-12 hours per week performing a single sport. In contrast, kids in recreational programs spend 4 hours a week on a single sport.

The investigators noted that for most sports, training volume naturally increases as athletes age and advance to higher levels of competition. Moreover, young athletes increasingly participate in year-long training that leaves no time for any other sports. "Sixteen to 20 hours per week could be becoming a norm for the highest-level athletes these days," explained Dr Jayanthi.

Recommendations for Reducing Risk for Injury

The results suggest that it may be useful to define sports specialization along a continuum to aid in studying and quantifying risks for injury. As an example, year-round training may reflect a low end of sports specialization. A child who chooses to quit all other sports may have a medium level of

sports specialization. Young athletes who state that they are committed to a single sport are characterized as having high sports specialization.

High sports specialization is becoming increasingly common with young athletes. Over the past few decades, young people have dedicated more hours to organized sports teams and spent fewer hours enjoying unstructured free play. Dr Jayanthi believes, however, that free play is important for health in general as well as the reduction of overuse injuries, in particular.

Dr Jayanthi made three recommendations for young athletes and their parents:



1. Try to limit early specialization.
2. Consider increasing hours slowly as the child ages, such that the child spends a maximum of 1 hour per week on any given sport for every year of age.
3. Make time for free play and fun, such as jogging, pick-up games, and exploring playgrounds.

Dr Jayanthi suggests that sports medicine physicians provide these recommendations to families with young athletes, particularly because in most cases, sports medicine physicians are seeing the children who are getting hurt.

Dr Jayanthi also elaborated on the importance of free play. He explained that kids on public assistance have the highest rate of free play and the lowest rate of serious overuse injuries.

In contrast, kids from higher socioeconomic families spend money for their children to receive sports training and compete on specialized sports teams. These children are more likely to be injured.

Dr Jayanthi also feels that young athletes with intense training schedules have a poorer quality of life than children who spend their time at free play. He noted that many young athletes do not use the word "play," but instead focus on success. He thinks that unfortunately, this focus is driven by the adults in the child's life.

The AMSSM on Early Sports Specialization

The study findings echo the position statement from the American Medical Society for Sports Medicine (AMSSM).^[2] The statement begins by acknowledging that most studies focus on loss of time from a sport as opposed to the injuries incurred by a child.

The AMSSM suggests that preparticipation exams be used to assess sport readiness and identify prior injury patterns. Such a history of injury can be an established risk factor for overuse injuries and should be noted. In addition, menstrual dysfunction is a predisposing factor to overuse injury in adolescent female athletes.

The position statement also discusses the concept of sport readiness and the role that cognitive development and motor skills play in the setting of goals and expectations.

The AMSSM points out that early specialization does not necessarily lead to long-term success and may predispose the child to both overuse injury and athlete burnout. Moreover, overuse injuries are not necessarily benign. The AMSSM specifically identifies stress fractures of the femoral neck, tarsal navicular, anterior tibial cortex, physis, and effort thrombosis (Paget-Schroetter syndrome) as potentially having long-term consequences.

Putting Young Athletes' Welfare First

Although many coaches claim that increased training hours translate into increased success, Dr Jayanthi questions the assertion, noting that there are no studies to that effect. Instead, he thinks that the limited studies that are available point to the importance of the quality of training over its quantity.

In many instances, a young athlete's best chance of being successful at a sport may rest on judicious training. Injury almost always necessitates recovery time away from the sport. Because many young athletes feel that they cannot afford to be

away from practice for an extended period, warning about recovery time may prompt a thoughtful discussion about the need for a training strategy that is protective against injury.

Unfortunately, many coaches enter such a discussion with a financial conflict of interest. If young athletes diversify and spend fewer hours participating in organized sports, then the once-preferred sports team will receive less revenue, and this may directly affect the earning potential of the coach.

Nevertheless, in its position statement, the AMSSM calls on the athlete, parents, and coaches to come together to discuss an overuse injury once it has been diagnosed. The discussion should include a review of the risk factors as well as the creation of a strategy to avoid recurrent injury.

References

1. Jayanthi NA, LaBella CR, Fischer D, Pasulka J, Dugas LR. Sports-specialized intensive training and the risk of injury in young athletes: a clinical case-control study. *Am J Sports Med.* 2015;43:794-801. [Abstract](#)
2. DiFiori JP, Benjamin HJ, Brenner J, et al. Overuse injuries and burnout in youth sports: a position statement from the American Medical Society for Sports Medicine. *Clin J Sport Med.* 2014;24:3-20. [Abstract](#)

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