

## Practice makes perfect—or does it?

by Steven Chudik, MD

For generations, parents, coaches, teachers, bosses and countless others have repeated those words of wisdom—*practice makes perfect*—in hopes of inspiring the recipient to keep working on whatever the task was that prompted the comment.

As an orthopaedic surgeon and sports medicine specialist, I know firsthand that adhering to that mindset ended many athletic careers and participation. Why? Overuse.

An estimated 60 million children age six to 18 in the United States participate in sports as a form of exercise, socialization and entertainment. Unfortunately, we're seeing a troubling movement toward sport specialization at earlier and earlier ages resulting in more instances of overuse injuries. Research supports what I'm seeing in my clinic.



A study out of the University of Wisconsin reported in the *Orthopaedic Journal of Sports Medicine* looked at the affect of sports on approximately 1,000 female and male youth club sport athletes. Researcher asked about their attitudes and beliefs toward sport specialization and sport participation. Despite the well-documented connection between overuse and specialization with the risk for injuries, only 45.8 percent believed specialization increased their chances of getting injured either “quite a bit” or “a great deal.” Conversely, 91 percent of the athletes believed sport specialization improved their chances of improving at their sport either “quite a bit” or “a great deal.” Furthermore, most of the athletes believed specialization increased their chances of making their high school team (80 percent) or a college team (66.9 percent) “quite a bit” or “a great deal,” and 15.7 percent felt they were either “very” or “extremely” likely to receive a college scholarship based on their athletic level of sports performance. Highly specialized athletes in the study were two times more confident about receiving a college scholarship based on performance when compared to less specialized athletes.

Based on their findings, the researchers concluded that the disagreement between athletes’ beliefs and previous research on the injuries caused by overuse and specialization indicates the need for improved communications and education regarding the risks and benefits.

An earlier study referenced by the researchers and reported in *The American Journal of Sports Medicine*, surveyed more than 2,000 male and female athletes between the ages of 12 to 18 about how many times a week and year they participated in a sport(s) and what injuries they sustained. The researchers classified the specialization as low, moderate or high sport participation and grouped as either meeting

*Continued on next page*

## Overuse injury research

*Continued from page 1*



or exceeding current volume recommendations which is “children participating in organized sports should not play one sport more than eight months per year and not more hours per week than their age,” i.e., a nine year old should not participate more than nine hours a week of the same sport. Researchers noted the recommendation of eight months of participation per year is the most well-known benchmark, but is data based on previous baseball injuries research and resulting arm injuries. Therefore, they made no definitive recommendation on whether the same duration would be appropriate for other sports, ages and even for the prevention of lower body injuries.

Given that, the researchers limited their scope of investigation to determining the association between sport specialization and injury history in young athletes. What they learned is highly specialized athletes were more likely to report a previous injury of any kind or an overuse injury in the previous year

compared with athletes in the low specialization group. These findings independent of age, sex and weekly organized sport volume and those who exceeded recommendations are significant and need to be heeded by athletes, parents and coaches.

Even with all the cumulative research and findings concluding sport specialization causes overuse injuries, an additional study was done and presented at the 2019 annual meeting of the American Orthopaedic Society of Sports Medicine and published in *The Orthopaedic Journal of Sports Medicine*. The study followed 602 high school students with the intent of tracking their sports specialization throughout their high school playing years.

Just two years into the research, 255 of the 602 athletes (42.4 percent) reported they were specializing in a sport. The highest participation rates were in soccer at 26.9 percent; 20.6 percent in baseball; 18.3 percent in softball and 15.6 percent in swimming. Of the 255 specializing athletes, 95 (37.3 percent) reported spending more than 10 hours a week in sports-related activities compared to 105 (30.3 percent) athletes that didn’t specialize. Slightly more than half (56.5 percent) of those in the specialized group were injured playing their primary sport in the past compared to 43.5 percent of non-specialized athletes.

When the researchers looked further into the differences between the specialized versus non-specialized athletes, they found that 78 percent of the specialized athletes were injured before the study period that prevented them from participating in sports for part or the whole season. Conversely, 40 percent of the non-specialized athletes suffered an injury prior to the start of the season that prevented them from participating.

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## Overuse injury research

Continued from page 2

Because the research did not run the full four years as planned, the researchers noted the relationship between high school specialization and a higher number of injuries warranted further investigation into the potential health effects of early sports specialization.

Research has discovered association between sport specialization and injuries. “I believe it has more to do with the association of sport specialization with overuse that leads to injury, especially in our developing (growing) athletes. Regardless of whether your child plays one sport or multiple sports, we need to protect our developing children from overuse that increases their risk for injury and the development of degenerative joints,” advised Dr. Chudik.

## Use Dr. Chudik’s interval throwing programs for safe training, return to play after injury

Research continues to show a cause and effect between overuse in sports and related injuries, particularly if the athlete specializes at one sport. According to Dr. Steven Chudik, athletes should focus on instruction and less on competitive sports.

“Part of the instruction should be teaching athletes the importance of good biomechanics and following specific training/conditioning programs,” Dr. Chudik said. “For example, an interval throwing program (ITP) should be used as part of throwers’ training and before returning to play after time off or an injury,” he explained.

An ITP for throwers is based on throwing at an incremental speed and distance to gradually prepare the arm for the season. Typically, ITPs are age-specific and incorporate pitch statistics, field dimensions, performance restrictions and throwing endurance. They start with short tosses and progress in intensity and number of throws, as well as distance in a safe manner. The ITP should be completed in the preseason prior to returning to throwing following time off, or after rehabilitating an injury.

Dr. Chudik uses three age-specific ITP programs for throwers recovering from an injury or time-off that are designed to work in conjunction with a research-based, in-season baseball stretching and conditioning program created by Dr. Chudik and his health performance team through his foundation, the Orthopaedic Surgery and Sports Medicine Teaching and Research Foundation (OTRF). To receive a copy of an age-specific ITP program, email the age of the player(s) to [contactus.chudikmd.com/](mailto:contactus.chudikmd.com) along with your name and email address. To download a PDF copy of the OTRF baseball stretching and conditioning performance program, go to: <https://www.otrfund.org/sports-performance-programs/>.

