

Discussion

1. Dr. Sommer Hammoud: *In your opinion, what do you think it will take for the public at large to begin to adopt and implement the important messaging of the STOP Sports Injuries campaign? Do you think that we will begin to see a downturn in the numbers of youth athletes who specialize in sport?*

Response: The key to the campaign's success starts with a local, grassroots outreach movement. Our belief is to spread awareness through a comprehensive approach, involving everyone from clinicians, teachers, coaches and parents. We hope that our readers will implement these recommendations to help identify increased risks and prevent injuries from occurring. Discussing risks of early sport specialization begins before the athlete is putting themselves at risk. We encourage early discussion with our colleagues in primary care, physical therapy, and athletic training to help educate both athlete and parent before injuries occur.

As more awareness is created through early discussion on the risks of early sport specialization, we hope to see a push towards increased sport sampling periods which subsequently should decrease the number of athletes specializing early in sports. We are not against specialization in sport and anticipate that athletes will likely continue to specialize in sport as they mature. We advocate to begin specialization when you are physically, mentally and emotionally mature, typically around age 16.

You can find more resources on the STOP Sports Injuries campaign at: stopportsinjuries.org.

2. Dr. Sommer Hammoud: *What are the barriers to being able to develop pitch count restrictions in softball pitchers as we have in youth baseball?*

Response: The biggest barrier to developing a pitch count restriction in softball pitchers is that research is much more limited when compared to our male pitchers. The previous belief of a "natural throwing motion" which does not strain the throwing arm has evidence which clearly suggests that is false (26,27). Additionally, the injury rates in softball players tend to be low when examined prospectively compared to baseball player (34-36). Whereas the high elbow and shoulder injury rates in young baseball players helped to guide the development of pitch count and other competition regulations very few softball organizations have

acknowledged the potential risk for injury in their athletes. Little League Softball (37) developed pitch count regulations recommending a maximum of twelve innings in a day and one calendar day of mandatory rest after a day where a pitcher throws seven innings. However, USA Softball, the national governing body for the sport, and many other competitive organizations have not adopted similar guidelines. Although the data are limited, there are more and more researchers investigating number of pitches, fatigue, and strain on the upper extremity, particularly the shoulder and elbow (26-27,38-40). We have highlighted some studies within this paper that focus on developing upper limits for softball pitch counts (29-31). Although we do not have an exact limit of pitches, we offer evidence to help facilitate future discussion on the need to develop a safe and effective pitch count limit for softball pitchers to prevent overuse injuries.

3. Dr. Sommer Hammoud: *What is the best way to assess for "fatigue" in the adolescent female throwing athlete? Is it reliable for the athlete to self-report? Can we rely on coaches?*

Response: Currently there is no widely used metric to assess fatigue in the adolescent female athlete. Internal Training Load is a method that could be easily implemented by coaches to measure both acute and chronic workloads in adolescent female athletes. Internal Training Load is derived from assessing rating of perceived exertion (RPE), for the total body, on the Borg CR-10 scale and multiplying the value by the duration of performance. For softball pitchers this measure would need to be calculated for each inning pitched and should be monitored throughout the season. RPE is a subjective measure that relies on the athlete understanding how tired their body is and providing a truthful rating. Similarly, coaches must prioritize the health and well-being of the athlete over winning in order for Internal Training Load to be effectively utilized to reduce injury risk. The emergence of wearable technology is promising for the assessment of training load and fatigue. Fleisig (41) provided an editorial commentary regarding the growing use of wearable technology in baseball. The Motus Sleeve and the Whoop are two current devices that offer the potential to monitor workload in overhead athletes. While wearable technologies are used more frequently in collegiate and professional athletes, over time we expect more competitive adolescent athletes to begin to utilize this available technology.

References

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