Editorial

The benefits of youth sports participation should outweigh the risks

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Sports participation has never been more popular. The number of kids participating in organized athletics continues to increase each and every year. This statistic is supported by the recent demographic data present in the article by Ukogu *et al.* (1). This is because there is overwhelming evidence to support that sports activity benefits both the body and the soul. However, proper care for the youth athlete is extremely important to ensure the benefits of athletic participation outweigh the risks. In this focused issue of Annals of Joint led by Dr. Alexis Chiang Colvin and Dr. Diana Patterson and entitled: "Orthopaedic Sports Injuries in Youth" research about the demographics, injury prevention and treatment are being presented.

Although sports injuries can be caused by trauma, the overwhelming majority of are actually caused by overuse. The most common sports injuries involve cramps, sprains, strains, contusions, wounds, fractures and concussions. Solomon *et al.* in their paper review the current literature surrounding sports induced shoulder pain, with a particular focus on the adolescent population (2). The majority of the injuries they prescribe can be linked to overuse, such as little leaguer shoulder and glenohumeral internal rotation deficit. Similarly, Andelman *et al.* in their article discuss the most common injuries to the adolescent elbow, all of which can be attributed to repetitive stress such as olecranon apophysitis and stress fractures, ulnar collateral ligament injuries and osteochondral defect of the capitellum (3). We agree with the authors of both studies that perhaps the biggest impact on our youth athletes can be made by placing the focus on injury prevention, such as pitch count monitoring and proper stretching. The American Academy of Pediatrics has provided some general guidelines (4). There include things like rules for time off, wearing the right gear and clothing, proper conditioning and stretching, good form and technique, as well as hydration and nutrition.

We know there are several risk factors which can predispose to injury. These include age, gender, congenital problems, lack of flexibility, coordination, balance, speed, strength and endurance, malnutrition, lack of sleep, emotional stress, ill-fitting equipment and shoes, lack of warm up, overtraining, fatigue. Of these, perhaps most well-known one is the female athlete triad. Ranson *et al.* describe this condition marked by decreased energy availability, menstrual dysfunction, and low bone mineral density and how to recognize and treat it (5).

At the University of Pittsburgh, and many other institutions involved in providing care for sport teams, we have measures in place to prevent injuries (6). This includes preseason medical and orthopedic screening, athletic trainers teaching proper stretching exercises, equipment fitting and training rooms where injuries are evaluated and treated.

When injuries do occur, initial evaluation is often done on the field. Chi *et al.* provide some pearls to providing a good assessment (7). This varies from the evaluation in adults. Similarly, treatment is vastly different than in adults. As outlined in the article by Chang *et al.* on hip injuries, the youth hip is prone to unique physeal injuries including slipped capital femoral epiphysis and apophyseal avulsions.

Acute trauma such as labral tears, fractures, and ligamentous injuries may lead to long-term debilitating complications if not properly managed (8). Weightbearing joint such as the hip, knee, ankle and foot are more vulnerable to both acute and chronic overuse type injuries. DeBellis *et al.* discuss a variety of knee problems seen in the pediatric patient such as osteochondral lesion, Osgood-Schlatter, patellofemoral pain and the discoid meniscus (9). As described in the article by Du *et al.*, the foot and ankle do not only bare weight, but also undergo rapid growth during childhood and adolescence, making them more prone to injuries such as physeal fractures and osteochondral lesions (10).

Luckily, most pediatric extremity injuries can be managed with an initial trial of immobilization and early range of motion. Only for a small subset of injuries is surgical intervention necessary. Children have a robust healing response to bony and soft tissue injuries, and have good outcomes with appropriate management. This is outlined well in the article by Sochol *et al.* focusing on upper extremity injuries (11). The authors provide an excellent overview of soft tissue, bony and sport specific injuries in the pediatric population.

Although extremity injuries such as fractures and ligament tears can be devastating to a young athlete's career, injury to head and spine can be life threatening as well. In the article by Dowdell *et al.* the challenge of making the diagnosis to provide proper treatment of a pediatric spine injury is discussed (12). With the severity of these injuries, the goal is not only to return to sports, but also to prevent any long-term complications and consequences.

Research on the prevention and treatment of youth sports injuries will continue to be a focus within orthopaedic surgery. This issue of the journal certainly adds to this knowledge base, ensuring that the benefits of youth sports participation will continue to outweigh the risks!

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Footnote

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