

## Special Commentary: Anticipating Children's Return to Sports in the Time of COVID

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As a pediatric orthopedist, I regularly discuss the importance of posture, core strength, and mobility with my patients and especially athletes. The COVID-19 pandemic has reduced youth involvement in sports and increased stationary time at home. As we adapt to the current climate and children reenter the world of sports, we must also consider how deconditioning will affect return to play.

Organized sports are popular among children and teenagers in the United States, with approximately 30 million participants; however, more than 3.5 million children sustain sports-related injuries every year<sup>9,10</sup>. Interestingly, many injury reports found that the young athletes were not adequately prepared and trained for activity<sup>4</sup>. The National Strength and Conditioning Association found that preseason conditioning programs significantly reduced the incidence of injuries in adolescent athletes<sup>4</sup>. In one study, 14% of athletes participating in preseason training sustained injuries, while 33.7% of nonparticipants sustained injuries<sup>6</sup>. Researchers conducting a study on knee injuries in high school football players found a 61% injury reduction in linemen<sup>1</sup>. As the hiatus from physical activity and sports begins to end, we must ensure that our children are first properly trained to return to the field.

Adolescents are not only participating less in physical activity, but they are engaging more in sedentary activities. With the rise of virtual school and daily use of technology, pediatric posture has worsened. Many of my patients do not know how to sit or stand upright and exhibit head-forward posture. Furthermore, they lack the muscular strength and flexibility to correct their misalignment. Children's school and leisure environments are often not set up ergonomically for success. Appropriately sized desks and chairs should be used to create a workspace where proper posture is encouraged. A recent study found that low physical activity is the most common risk factor for postural deviations and that over 50% of children have incorrect posture<sup>11</sup>.

Poor posture must be addressed as athletes return to play as a risk factor for injury. A study on injured football players found that kyphosis, abducted scapulae, and lordosis were associated with back injury as well as lower extremity injury<sup>12</sup>. Luckily, posture is easily improved with physical therapy. Athletes can perform exercises to improve alignment and scapulae adduction at home and as a team before their sport season begins. A posture brace is another simple, inexpensive solution to improve health outcomes in pediatric patients.

Associated with poor posture, insufficient core strength is another byproduct of the inactive, pandemic lifestyle and is another risk factor for injury in youth sports. There is a plethora of literature surrounding the benefits of core training in children. A weak core, in a similar fashion as poor posture, is associated with extremity injury<sup>7</sup> and back pain<sup>8</sup>. Not only does a strong core reduce risk of musculoskeletal injury, but it can enhance exercise performance and improve bone health<sup>2</sup>. In two studies, researchers found that children participating in dynamic core exercises in physical education class had increased muscular endurance, movement capability, and flexibility<sup>2,10</sup>. Essentially, training the core muscles contributes to controlled and functional movements, which in turn improves performance and mitigates injury<sup>7</sup>.

The good news is there are several simple steps that parents can take to promote proper posture and core strength in children. I suggest investing in an ergonomic chair designed for controlling pediatric spine alignment. It is important for parents to teach their children to keep their heads in a neutral position when using technology. We should encourage kids to bring technology up to eye level and to take frequent breaks from technology to walk around and stretch.

Physical activity and athletics counter the detrimental effects of a sedentary lifestyle on the physical body, but they play an important role in mental health as well. One study found that involvement in sports was associated with larger hippocampal volume; research suggests in depression, this area has reduced volume<sup>5</sup>. A pediatric emergency psychiatrist, Dr. Vera Feuer, recalls a patient she lost to suicide in 2020, “The pandemic had taken away his access to sports, which was his world”<sup>3</sup>. While formal research is still underway, child psychiatrists are seeing increased numbers of suicidal attempts and deaths in recent months and are suspicious the pandemic is playing a pivotal role. It is critical that as health care practitioners, coaches, and parents, we get our children back outside and on the field safely so that their overall wellbeing is supported.

As children embark on a new athletic journey, it is critical to consider several factors. Coaches and physical education teachers must work with adolescents in sports to ensure that they are physically prepared to return to play. By encouraging proper posture, adequate strengthening and conditioning, and progressive return to play, we can reduce the risk of injury and boost performance. These steps will keep our children happy and healthy on the field and in life!

**Please view the YouTube video at <https://youtu.be/dbPQ98Bv5I0> for additional background.**

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