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Commentary

Wrist Pain is Among Paediatric and Adolescent Athletes Causing Fractures

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DESCRIPTION

Wrist pain is common among paediatric and adolescent athletes, either as results of acute injury or chronic stress. Referring and treating physicians must remember of occult bony and ligamentous injuries about the wrist so as to properly evaluate and treat acute injuries. The clinician must even be conscious of the results of repetitive loading of the wrist during upper extremity weight-bearing, especially with reference to distal radius physical injury in skeletally immature gymnasts. This review provides current strategies for evaluation and treatment of several less commonly discussed sources of wrist pain within the paediatric athlete, including scaphoid fractures, scapholunate ligament injuries, triangular fibrocartilage injuries, dorsal carpal impingement, and gymnast wrist.

Sports are a major cause of hand and wrist injury in children and adolescents. The wrist and hand are the leading sites of injuries in many sports including sports that do not use the hands, such as soccer, skateboarding, and snowboarding. Sports activities can produce a wide variety of injuries about the growing wrist, but because most epidemiologic studies have focused on fractures, the true incidence of ligamentous and cartilaginous injuries in this population is not known.

Scaphoid fractures

The scaphoid is most commonly fractured carpal bone in children. The peak age for scaphoid fractures is 13 to 15 years, and scaphoid fractures are rare under 10 years. Most fractures occur in the waist or distal pole. Scaphoid fractures can occur with ipsilateral distal radius fractures. Snuffbox tenderness and tenderness at the distal pole of the scaphoid with volar palpation and pain with radial deviation of the wrist or axial loading of the thumb are physical examination findings suggestive of scaphoid fractures and should be assessed in any injured wrist. Radiographs should include not only standard PA and lateral views but also a poster anterior view in ulnar deviation.

However, no displaced fractures may be undetectable on plain radiographs. Magnetic Resonance Imaging (MRI) is both sensitive and specific for scaphoid fractures in children and can be used after injury, if a scaphoid fracture is suspected clinically but radiographs are normal.

Distal radius fractures

The incidence of distal radius fractures does not necessarily correlate with sports activity likely owing to the extremely common nature of this injury. Nonetheless, sports activities are a major cause of distal radius fractures and some of these injuries may be preventable. For instance, wrist guards lower the risk of distal radius fracture in high-risk sports, such as inline skating13 and snowboarding.

The evaluation and treatment of distal radius fractures is covered in detail in subsequent sections of this symposium, but it is worth noting in this context potential concomitant injuries more distally in the wrist, such as scaphoid fracture and Triangular Fibrocartilage Complex (TFCC) tear.

Scaphoid fractures should be routinely ruled out by physical examination (and further imaging, if needed) in any distal radius fracture in adolescents.

Scapholunate ligament injury

Ligamentous and cartilaginous injuries may go unrecognized in children and adolescents owing to difficulty in evaluating the incompletely ossified carpus and a propensity to assume that wrist injuries with normal radiographs are physical fractures.

Scapholunate distance on pediatric wrist radiographs does not reach the normal adult value of 2 mm until at least age.
Persistent wrist pain and appropriate clinical examination findings should raise suspicion for scapholunate injury even with normal radiographs. Stress radiographs, MRI, and arthroscopy can aid in diagnosis of scapholunate ligament injuries. Acute, complete tears are generally easier to diagnose with imaging, whereas partial tears are typically diagnosed by arthroscopy in the setting of chronic posttraumatic pain unresolved with conservative treatment.