



## Why do young throwers with arm pain need rehab?

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Every year more and more young kids participate in baseball, softball and other overhead sports like volleyball and swimming. There's also a trend toward early specialization in sports. As a result, we are seeing more kids with shoulder and elbow pain. In many instances, these athletes are told to rest and wait for their pain to go away, and once they aren't hurting, they can resume activities. Some kids take this rest break and never have another problem, but in my experience, the vast majority of these young athletes have their symptoms recur or develop pain in another part of their arm. The bottom line is too many of these athletes are breaking down repetitively at a young age, and we need to address the root of the problem.

#### Potential causes for arm pain in young athletes

**Over throwing:** The primary risk factor for youth arm injuries is the sheer volume of throws. Educating on proper pitch technique, not playing in multiple leagues at the same time and recommending that kids take at least three months off every year can help remedy this problem.

**Poor core strength:** Most of our patients report that they do some sort of "core" exercising, but when we try to have them engage their deep lumbar stabilizers, the muscles that truly stabilize the spine, many don't know how to isolate and consciously contract these muscles. When a child is unable to maintain a neutral, stable spine, they are unable to translate the power that generates from the hips to the shoulder blade and in turn to the arm when trying to throw.

**Poor scapular control:** Another common theme in our young throwers is scapular dyskinesia, which is a lack of control and lack of coordination between the shoulder blades. A lack of neuromuscular strength and control of scapula once again makes throwers unable to translate the force generated from the hips and trunk to the arm. This leads many throwers trying to generate more force with just their arm, which leads to breakdown. This also leads to poor scapular positioning when throwing, potentially creating increased stress on the arm.

**Poor posture:** To throw effectively, the athlete must be able to extend his or her upper thoracic spine and fully retract the scapula, bring the arm back into an appropriate position and deliver the throw. We commonly see patients slouched with their shoulders rounded and their heads forward. This habitual posture leads to tightness in the pec minor and pec major, which can impact a patient's ability to fully retract the scapula. It can also lead to segmental dysfunction of the thoracic spine. If a patient is unable to achieve the appropriate arm position during the cocking phase, it can affect the arm slot and mechanics during delivery and cause additional stress on the arm.

**Poor flexibility:** In addition to poor flexibility of the pec muscles created by poor posture, we also see throwers that have pain from posterior shoulder tightness. We call this condition glenohumeral internal rotation deficit (GIRD). If a thrower develops tightness in the posterior capsule, it can actually create a shift in the way the humerus sits on the glenoid. This creates a shift in the axis of rotation, as they bring the shoulder into the abducted externally rotated position needed for throwing and places additional stress on a thrower's labrum. This is more common in adolescent patients.

**Instability:** If a patient has inherent laxity and multidirectional instability, he or she may be more prone to overuse throwing injuries. When the joint capsule is naturally lax, the additional joint translation that occurs during overhead activities leaves patients more prone to secondary impingement, and general wear and tear on the joint. In the absence of ligamentous stability, we must teach patients exercises to improve muscular stability.



## When to refer a patient to Cook Children's SPORTS Rehab

- If there is pain
- If there are physical limitations
- If there are recurrent injuries
- If there are injuries that are not healing
- If the patient needs equipment and/or orthosis
- If the patient needs back-to-sport training
- If the patient needs injury prevention information
- To address proper body mechanics and alignment

Cook Children's SPORTS Rehab therapists treat all phases of injury, from acute, sub-acute, chronic and sport-specific training. Our physicians, therapists, nurses and technologists work exclusively with kids and understand the unique needs of a growing athlete's bones, muscles, body and mind.

## SPORTS Rehab locations

750 Mid Cities Blvd., Ste. 130, Hurst, TX 76054

1719 8th Ave., Fort Worth, TX 76110

2000 Matlock Road, Ste. 100, Mansfield, TX 76063

## How can rehab help?

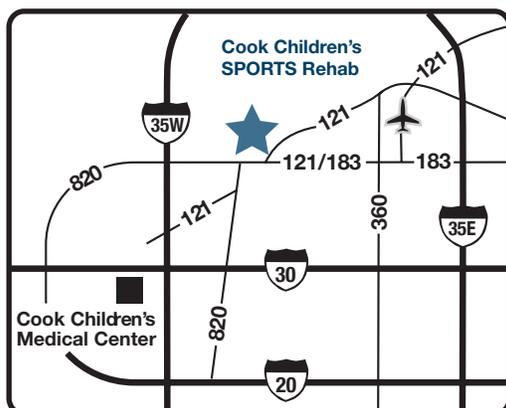
### Integrated scapular strengthening

At Cook Children's SPORTS Rehab, we strengthen the core by focusing on hips, deep lumbar stabilizers and scapular control and strength. Then, we take that a step further and work on integrated scapular strengthening. We try to use exercises that train good movement patterns, rather than focusing on one muscle group. We use a variety of neuromuscular training patterns to teach the hips, trunk and arms to work together as a unit. Most throwing injuries occur because at some point, there is a breakdown in the kinetic chain, causing the thrower to overuse the arm. By using techniques like proprioceptive neuromuscular facilitation (PNF) patterns, we can teach athletes how to integrate movement patterns and get the entire body to work as one unit.

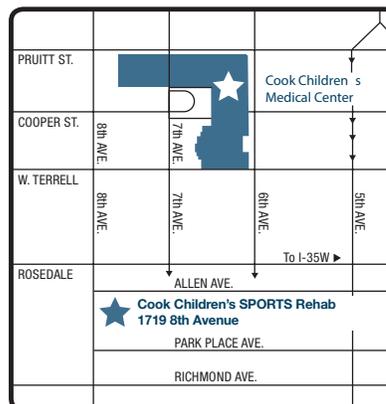
### Stabilization programs for patients with multi-directional instability

For patients with multi-directional instability, we focus on improving muscular stability around the shoulder and using closed-chain activities to help train proprioceptive awareness of the upper extremity. Closed-chain exercises not only work on improving muscular strength throughout the upper extremities, but they give us proprioceptive input to help heighten our awareness of where our joint is in space. By improving muscular strength and improving proprioception, we can provide stability to an inherently unstable joint.

Hurst



Fort Worth



Mansfield

