

Patient Guide to Shoulder and Elbow Problems in Little League Baseball Players

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What kinds of orthopedic problems do children have with throwing a baseball?

Throwing a baseball can put tremendous amounts of stress upon the throwing arm of both adults and younger baseball players. In adults the stress is absorbed by the ligaments and tendons, and as a result they tend to get tendinitis or stretching of the ligaments. However, in growing children the stress is absorbed by the weakest parts of the bones, which is the cartilage at the ends of the bones. This cartilage is the part of the bone where growth occurs, and damage to this area can have long-term consequences for the shoulder or elbow.

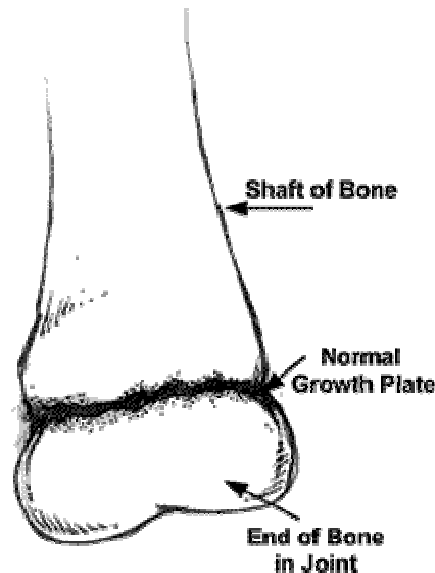


Figure I
Normal Growth Plate
in Growing Bones

What is the growth plate?

The growth plate is a specialized part of the bone located near the joint which is where growing of the bones occurs (Figure I). This area is not as strong as the bone, ligaments or tendons. As a result, when the shoulder or elbow feels the stress of a baseball pitch, the growth plate is affected by this stress more than the other structures. This is only a problem if the stress occurs too frequently and if the stress is large. Players who pitch are at risk the most for these problems because they throw hard and often. This is one of the reasons that the number of innings (and hopefully the number of pitches) allowed by a player are limited by league rules.

What happens when there is too much stress?

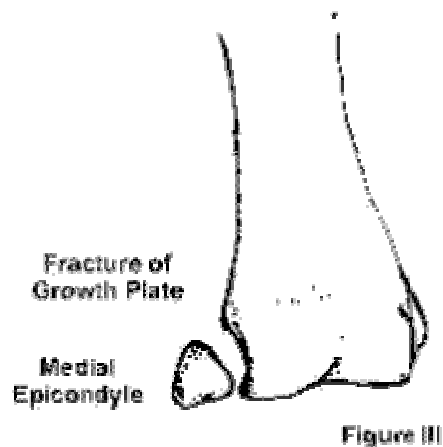
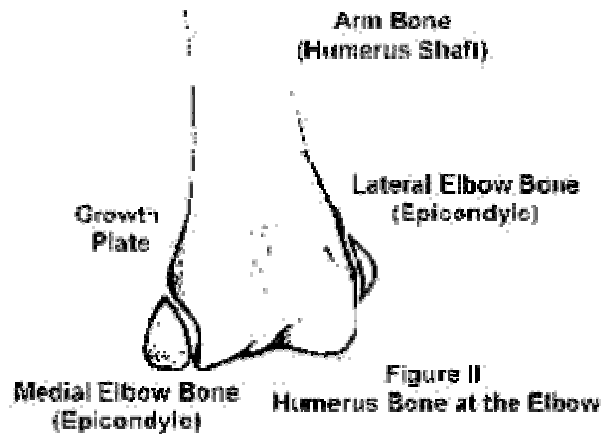
The cartilage of the growth plate cannot tolerate excessive stress, and the first sign it is being overworked is pain. Pain in the elbow or shoulder of a growing baseball player is not normal and should not be hidden with ice or medication. If the damage continues after the onset of pain, then the growth plate actually can break. In the elbow this is usually on the inside of the elbow and a small piece of the bone where the tendons attach can actually pull off (Figure II). If severe, this may need surgery to replace the bone. In the elbow the cartilage of the joint can actually be damaged as well (Figure II). If this occurs the elbow may lose the cartilage in the joint on the ends of the bones, which is called arthritis. Damage to the cartilage in the joint of a young baseball player can result in damage of the joint function for the rest of their lives.

In the shoulder the growth plate can fracture and cause significant time away from the sport. Rarely the upper arm bone may break if it sees too much stress over time. For these reasons, pain in the shoulder, arm or elbow should not be ignored in a young baseball player.

What are the signs of this damage to the arm and how is it detected?

The earliest sign is pain with throwing, and as the damage progresses the pain can continue after throwing. If the damage becomes worse there may be swelling about the elbow and even loss of motion. In the shoulder the only symptom is pain, and swelling is rarely seen. The pain usually is worsened only by throwing and not by other activities.

An evaluation by a physician will help confirm the diagnosis. Radiographs, or plain X-rays, will sometimes confirm the diagnosis. On the X-ray the growth plate damage may show up as widening of the growth plate or damage to the joint. If the X-rays are normal then it may be necessary to do other studies, such as a bone-scan or an MRI (Magnetic Resonance Imaging). These tests may show subtle damage not visible on regular X-rays.



What is the treatment for this problem?

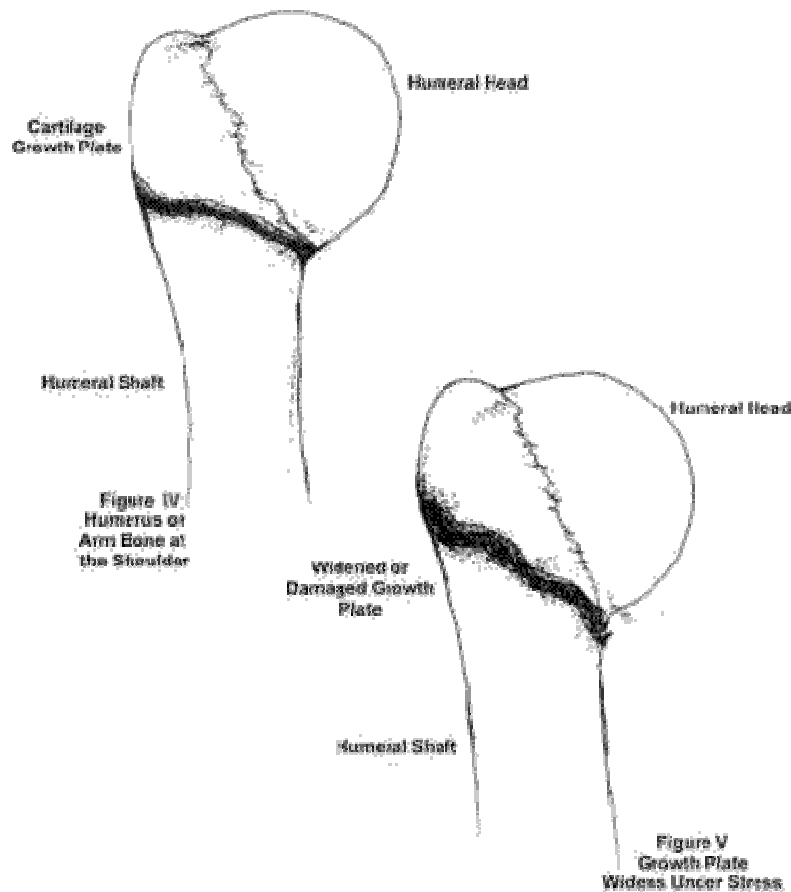
The main cause of this problem is throwing too much, which is usually seen in pitchers, even if they pitch only a couple times a week. The main way to treat this problem is to rest the arm until the athlete can throw without pain. How long this takes depends upon the extent of the damage, and can take up to six to eight weeks. Since it is only throwing that damages the arm, most other activities are allowed. Most players can continue to hit, run, lift weights or play other sports. Ice or pain medication are not recommended because they will not speed up the healing process. Physical therapy will not be helpful to heal this process, but it may help keep the arm in shape. Basically, any motion that causes pain should be avoided. Most cases resolve with rest alone.

In cases where the cartilage of the elbow joint is involved, prolonged rest of longer periods may be necessary. If the damage to the elbow joint involves the cartilage to the extent that there are pieces of cartilage loose in the joint, arthroscopic surgery may be needed to remove the loose pieces. However, if surgery is necessary, the prognosis in these cases for the return to throwing is not good. In most cases throwing is not recommended forever. This is another reason not to allow this problem to go untreated.

In cases where the arm bone breaks, surgery is rarely necessary. These fractures

are usually treated with a splint and sling initially, followed by a brace that allows motion of the elbow and shoulder. The bone takes up to three months to heal and returning to throwing takes even longer.

In cases where a piece of bone pulls off the elbow, this often requires surgery to put the piece of bone back where it belongs. This must be done with anesthesia and an incision is required. The piece of bone can be put back on with pins or a screw, and it takes six or eight weeks to heal. Time back to throwing depends upon how healing progresses and whether full function returns.



How can these conditions be prevented?

Because these problems are due to the stress of throwing a baseball, these conditions may be preventable by limiting the number of times the athlete throws. The guides provided by most leagues are designed to prevent throwing too many pitches or too many innings. However, many players throw at practice or at home on their own. Unfortunately there are probably no definite number of pitches that determine when damage occurs. For this reason it is important that the player be honest about having pain and the adults involved inquire frequently about any discomfort reported by the player. It is important not to try to hide the pain or ignore its presence.