Spine University’s Guide to
Back Pain in Teen Athletes
Introduction

Back pain, especially lower back pain, is one of the most common complaints of pain among people in North America. But, while it's a common problem, until recently, many doctors felt that children and teens didn't experience back pain like adults. And if children did have pain, it was because of something very serious, like a tumor.

Over the years, this theory of back pain has been disproved. In fact, more children and teens have back pain than many thought and often it's caused or made worse by certain sports or types of activities. According to an article published by Jason Kronberg, DO, and Eric Small MD, in Contemporary Pediatrics, it's estimated that more than 50 percent of 18-year-old women and 20-year-old men have complained at least once about lower back pain.

Why is it important to identify back pain in teens?

Back pain in teens can lead to chronic back pain later in life. For example, Dr. Kronberg wrote about a study in Finland that reported 33 percent of teen girls who complained of back pain complained of chronic back pain as did 26 percent of teen boys.

If back pain isn't identified and treated in the earlier years, it may become difficult, if not impossible, to treat it as they are older. Painful backs can have a significant impact on career choices as well as personal issues, like carrying a baby through pregnancy.

The most common causes of pain.

Unless a child has been born with a back deformity that may cause pain, the majority of back pain is caused by sports. The young athletes are not usually sidelined completely by the injuries, but they may have to sit out a while during the healing process.

The most common back complaints among young athletes are caused by muscle strain or ligament sprains. These are usually overuse injuries but can also be caused by not moving properly (incorrect body mechanics), poor technique, being out of shape or not properly conditioned, and perhaps by improper stretching, although the importance of stretching is being debated among some researchers.

Are certain sports at higher risk than others?

There are several sports and activities that put a lot of pressure and strain on the back. They range from playing football to bowling, even dancing. Gymnastics seems to be the worst culprit for causing back pain. Kronberg says that 50 percent to 85 percent of gymnasts, wrestlers, soccer and tennis players have had back pain at one time or another. Another statistic shows that 75 percent of elite gymnasts have a usually uncommon back problem for teens, lumbar disc degeneration and herniation. The lumbar disc, in the lower back, degenerates and the gel between the discs can “pop out,” causing a herniated disc, also called a slipped disc or a bulging disc. Weight lifters who have this tend to have it in the upper part of the lower spine instead.

How are they treated?

Sprains and strains are usually the easiest injuries to treat. The first thing is to rest the back, which means restricting the sports activities. Ice is often used to reduce swelling but it can be alternated with heat if there are muscles spasms. Pain medications, such as nonsteroidal anti-inflammatories (NSAIDs) can also be used, but they shouldn't be used for too long a period of time (a couple of weeks).

Is there a risk with sprains and strains??

Because teens and children can be impulsive, they may not want to allow their back enough
time to heal properly. So, they may push to rush back to their sport or activity. If they are allowed to, they could end up with worse pain and a worse injury than before.

**How should they prepare for a return to sports?**

If the back pain is from a sprain or a strain, after they have rested their back and the pain begins to go away, young athletes should be taught how to do certain types of exercises to encourage further healing. This exercise program may be given by a physical therapist, a sports therapist or an experienced coach, after checking with the doctor to be sure that the exercises are appropriate.

The exercises have to be tailored to the specific part of the back that's been injured and are geared towards improving the athlete's flexibility and strength. The goal is not only to reduce pain and heal, it's to strengthen the area to reduce the risk of it happening again.

Finally, because many strains and sprains can be caused by poor body mechanics or techniques, ensuring that the athlete knows the proper way to perform or play is also important.

**Other Types of Injuries**

Young athletes are susceptible to more serious back injuries as well, but they're not always caused by the activity. Rather, the injury could be caused by an abnormality in the spine that is aggravated by the sport or activity. The two most common such injuries are *spondylolysis* and *spondylolisthesis*. The first one, spondylolysis, is a stress fracture in one of *vertebra* (the bones that make up the spinal column). It most often affects the fifth lumbar vertebra (in the lower back) although it can affect the one just above, the fourth lumbar vertebra. Generally, if this happens in adults, it's caused by a degenerative disease like arthritis.

Spondylolisthesis occurs if the stress fracture, the spondylolysis, weakens the bone so much that it starts to move out of place. If the vertebra moves too much, the bones can press on nerves, causing pain.

**Who gets these injuries?**

While just about any sport that puts pressure on the back can cause spondylolysis or spondylolisthesis, some put the athletes at higher risk than others. Athletes who participate in sports that put a heavy demand on the back and intense flexibility, such as backbends or extreme twisting, are the most prone to back injuries. These sports include football, gymnastics, and even weight lifting.

**How are these injuries diagnosed?**

When a child or teen complains of lower back pain, doctors have to take a lot of issues into consideration, including psychological issues or excuses to avoid potentially embarrassing situations like gym class. However, doctors must take the back pain seriously because, regardless of the cause, it needs to be diagnosed before any further damage could be caused.

Questions about the teen's lifestyle and sports activities are essential. Doctors are looking for answers to how quickly the pain came on (suddenly or over a long period), what seems to trigger the pain, how long the pain lasts, how often it happens, how intense the pain is, and what may help relieve it. It's particularly important that doctors know if there are other neurological symptoms, such as weakness in the legs or loss of bowel or bladder control. This could mean that the back injury is placing stress on or damaging the nerves in the spine. It should also be mentioned if the pain is causing the child or teen to not be able to function normally in their every day life.

Another issue that doctors need to know is how well the teen is eating, especially if the teen is participating in a sport where they are encouraged to remain as slight as possible.
Some girls may be compromising their nutrition by not eating or even developing anorexia, which can lead to weakening of the bones.

If the teen has complained of back pain after participating in sports but the pain seems to ease off or go away after staying away from the activity for a while, the pain could be caused by a strain or sprain.

It's not always easy to diagnose this problem in some athletes. Sometimes, it takes an experienced radiologist (doctor who is a specialist in reading x-rays) to be able to even see the small changes that may occur on x-rays. Often, other tests like magnetic resonance imaging (MRI) or computed tomography (CT) scans are needed. The CT scans show the bone in a better light, while MRIs, which use magnets instead of radiation) are better for showing the soft tissues around the bones.

Some doctors also use what they call a 60-second test. During this quick exam, the patients jump up and down on one foot and then the other. They are then asked to walk on their heels. This tells the doctor if there are any problems with their shin bone (the tibia).

**What are the symptoms?**

Athletes who have stress fractures of the back will usually complain that their low back pain comes on slowly, not suddenly, and the pain may not be directly in the back. Some athletes may only complain of tight hamstrings, while others may have lower back pain or pain that radiates into the buttocks. Pain usually gets worse if they try to bend backwards and often gets better when they rest.

**How is it treated?**

Treatment for the stress fractures can vary from doctor to doctor, but the goal is the same: to keep the injury from getting worse. Some doctors may use watchful waiting, which means that they'll monitor the athlete closely, with frequent visits and regular x-rays. If the condition doesn't seem to be getting worse and there is some improvement, it could be that no further treatments will be done. Other doctors will fit the athlete with a brace that keeps him or her from bending the back. How long the brace stays on depends on if it's helping relieve the pain, how severe the injury is, and if the back seems to be healing. Three to four months isn't unusual though. This may be combined with or followed by physical therapy.

Unfortunately for the athlete, treatment also means taking a break from the sport or activity. This can be very frustrating for an athlete who has an eye on bigger and better things, but the break is essential to allow the back to heal. As with the sprains and strains, it's very important to help the teen understand the need for healing properly and to be sure that he or she doesn't resume their activities before they should.

**Sometimes, surgery is needed.**

If nonsurgical treatment doesn't work, the next step might be surgery. Luckily, this isn't common though. If it is needed, the surgeon will remove the part of the vertebrae that is pressing on the nerve or nerves, or he or she may fuse the two (or more) vertebrae together.

Of course, there is a recuperation period after the surgery, which means taking an extended break from activities that can injure the back again. Usually, it takes about six weeks before the patient can begin working on making the back stronger again because the part that was operated on has to begin healing.

**How soon can the athlete return to his or her activity?**

While this seems like an easy question, it's not an easy one to answer. While some statistics show that about 80 percent of teen
athletes who have spondylolisthesis return to their sport after nonsurgical treatment, there are doctors who feel that an athlete who played contact sports should never return to that sport after a stress fracture injury. In fact, almost 50 percent say that they wouldn't recommend returning to the sport. However, 60 percent said that if the sport was a noncontact sport, they'd allow the patient to return to it. Then again, some say that they can return at six months, others prefer that the patient wait 12 months.

The *prognosis*, or outlook for athletes who return to their sport is not too good if they participate in the higher risk sports, if their pain came on suddenly, or if they had tightness in the hamstrings.

**Are these injuries happening more often?**

It's hard to tell if these types of back injuries are happening more often or if they're being detected more often. Sometimes, athletes just stop participating in their sport or stop being at the top of their level and just drop off. But there is an increasing amount of pressure being put on athletes at younger ages. The pressure is to perform better and harder than these athletes may have seen a generation ago. As a result, many of the young spines that weren't designed to take such abuse are breaking down.

Doctors have to keep in mind the rigors involved in the individual activities and how driven the teen may be to rise to the top of his or her sport. Elite level athletes are often praised for working through their injuries, so they may be particularly reluctant to sit out for a few months waiting for their back to heal.