



## Volleyball Injuries in Young Athletes

BY: Bill Primos, MD

Volleyball was invented in 1895 by William Morgan. It was originally called "mintonette". Today there are more than 800 million volleyball players in the world. Volleyball is a relatively safe sport, but there are several types of injuries that commonly occur in volleyball players.

### Lower Back Injuries

**A lower back strain** is probably the most common type of back injury. In a back strain the soft tissues or the muscles, tendons, and ligaments are stretched or torn. During adolescence, the bones in the skeleton grow longer. This bone growth causes tension due to stretching of the soft tissues in the back and the legs. The resulting tightness places young athletes at increased risk of suffering a back strain. A back strain may be acute and occur suddenly such as when diving for a ball or jumping to spike or block. A strain may also be an overuse type of injury that develops over a period of time. In an overuse back strain, repetitive activity during volleyball play results in multiple microscopic tears and inflammation of the tissues.

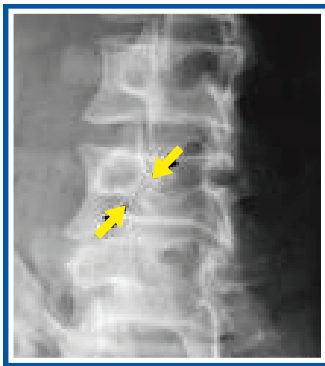


figure 1

Findings in a back strain include pain and limited mobility in the back. Bending forward, backward, or to the sides causes pain. There is usually tenderness directly over the spine or in the soft tissues on either side of the spine. Sometimes there is spasm or involuntary contraction of the back muscles.

Another cause of low back pain that is common in young volleyball players is spondylolysis. **Spondylolysis** (figure 1) is a stress fracture of a vertebra in the spine. This condition commonly develops in athletes who perform repetitive activities like hyperextension of the back. In more severe cases **spondylolisthesis** may occur. This is a forward slip or displacement of the vertebra. .

Treatment of lower back pain begins with resting from activities that cause pain. Anti-inflammatory medicine can decrease pain. Icing the area helps relieve inflammation and discomfort that occurs after activities. Physical therapy can help stretch tight

tissues. Exercises to strengthen back and abdominal muscles help stabilize the spine. Special treatment for spondylolysis may include wearing a brace and avoiding activities, especially those that involve hyperextension of the back.



### Knee Pain

The knee is another joint that is frequently injured in volleyball. The most common diagnosis in athletes with knee pain is **patellofemoral stress syndrome** or PFSS. This is an overuse injury which develops over a period of time and does not occur with one specific event. In PFSS, stress develops because of repetitive pressure between the kneecap (patella) and the thigh bone (femur) during activities such as jumping and running (figure 2). There are numerous factors that may make a person susceptible to PFSS. Some of these include genu valgus (knock-knees), pes planus (flat feet), tight hamstrings, and weak quadriceps muscles.

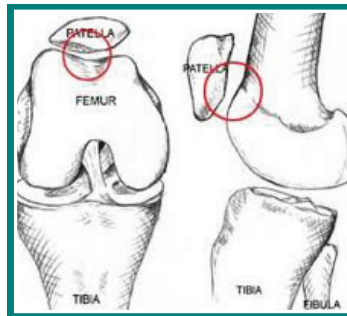


figure 2

Continued on page 2

Athletes with PFSS have aching knee pain around or under the patella. The pain is worsened during activities like squatting, jumping, and running. In some folks with PFSS, the knee may be weak and unstable making the individual at risk of suffering a **patellar dislocation**. Patellar dislocation may occur due to direct trauma to the knee such as in a fall or if the knee twists while it is partially flexed. After a dislocation, the knee is usually swollen with tenderness around the patella.

Relative rest by avoiding activities that cause worsening of pain is the first step in treatment of PFSS. Application of ice to the knee and taking anti-inflammatory medication can help relieve

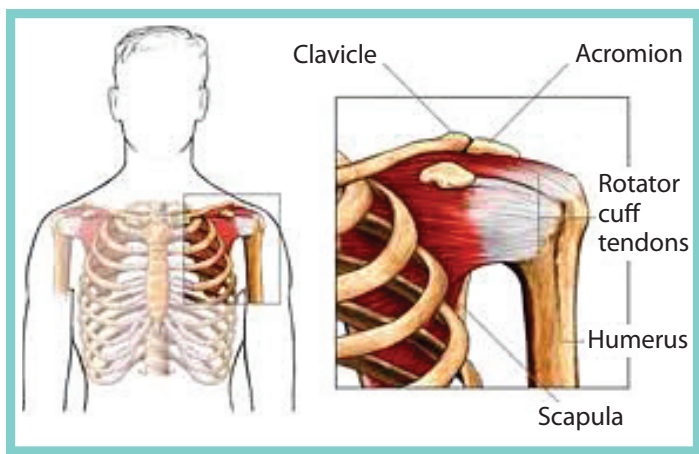


figure 3

pain. Physical therapy with quadriceps and hamstring exercises is very effective in treating the condition. A brace can also help to stabilize patella.

### Shoulder Pain

Another frequent complaint in volleyball is shoulder pain. Most shoulder injuries in volleyball players are overuse injuries such as **rotator cuff tendinopathy** or **bursitis**. These injuries are usually the result of repetitive overhead activities such as serving, spiking, and setting. The rotator cuff consists of four small muscles located in the shoulder (figure 3). The function of the rotator cuff is to stabilize the joint during movement. The rotator cuff muscles may

be fatigued by repetitive activity. Fatigued muscles are less efficient in stabilizing the joint. This loss of stability leads to irritation and inflammation of the rotator cuff and other tissues in the shoulder. Findings in patients with rotator cuff injury include dull aching pain as well as occasional sharp, stabbing pain with movement. There is often limited motion, especially reaching overhead or behind the back. The shoulder may feel like it moves out of the joint.

Treatment of glenohumeral instability is with relative rest to avoid movements, positions, or activities that worsen the pain. Taking anti-inflammatory medicine and applying ice help decrease inflammation. Physical therapy is very important in treatment. Rehab exercises improve strength and function of the rotator cuff and the shoulder blade muscles. A more stable shoulder joint is able to perform without being injured.

### Notes:



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