Hughston Health Alert

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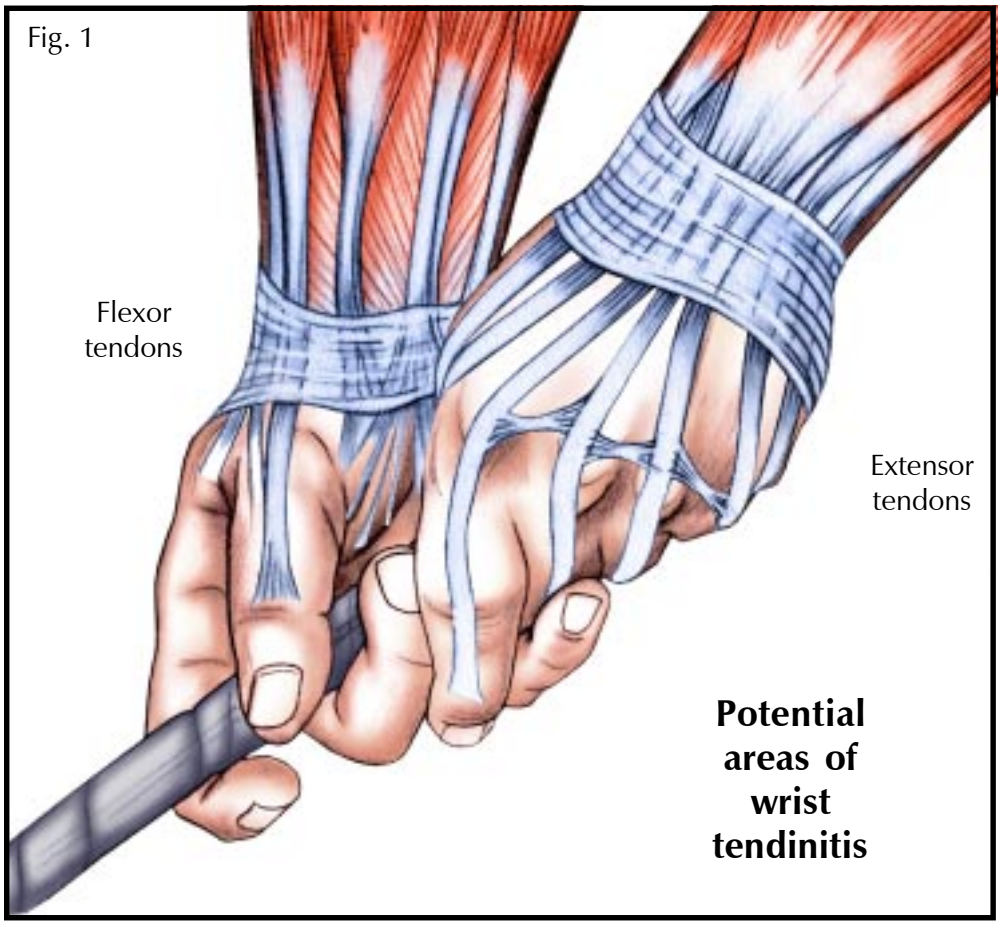
Wrist Problems in Golfers

Golf has historically been viewed as a refined sport with a low injury rate. Most injuries reported were anecdotal and due to odd ccurrences, such as a thrown club or a fall from a golf cart. In a 1989 study of high school athletes, there were no injuries attributable to golf.[1] Despite the perceived safety of golf, golfers do injure their wrists. A study of 225 professional golfers showed a 34% incidence of wrist and hand injuries.[2] These injuries involved the soft tissue, cartilage, bone, nerve, and vascular structures.

How is the wrist injured?

Tendinitis (inflammation of the tendon) can occur in golfers (Fig. 1). If a golfer increases practice time, an overuse injury can occur, particularly if the mechanics of the swing are poor. Advancing age, a previous injury, and anatomic abnormalities can further increase the risk of tendinitis. Patients are treated with rest, nonsteroidal anti-inflammatory drugs, and avoidance of activities that cause pain. If this treatment is unsuccessful, one to two corticosteroid injections into the area can decrease the inflammation. If injections are unsuccessful, surgery may be necessary to release a band of tissue (retinaculum) to create more space for the tendon (Fig. 2, pg. 2). After surgery, most patients refrain from golf for four weeks. After the initial four weeks, they begin practice swings. As motion and strength improve, usually between 8 and 12 weeks, they return to the game without restrictions.

Fig. 1



Potential areas of wrist tendinitis

Inside This Issue:

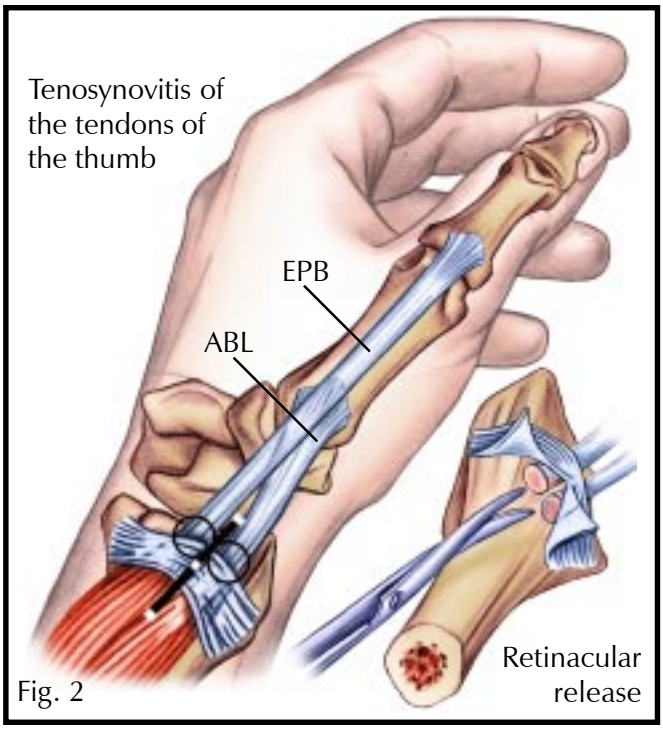


Fig. 2

Triangular fibrocartilage complex injuries are also seen in golfers. The **triangular fibrocartilage complex** is a structure on the ulnar side (outside) of the wrist, which is important to wrist stability (Fig. 3). With the increased motion of the wrist that occurs in golfers, this structure is prone to tearing. Very often, nonoperative treatment, such as rest, reduction of play, and nonsteroidal anti-inflammatory drugs, is successful in relieving pain. If it is not, the inflamed tissue can be removed by arthroscopic surgery (surgery using small incisions). If the cartilage tear is large, repair of the cartilage through an open incision is sometimes necessary.

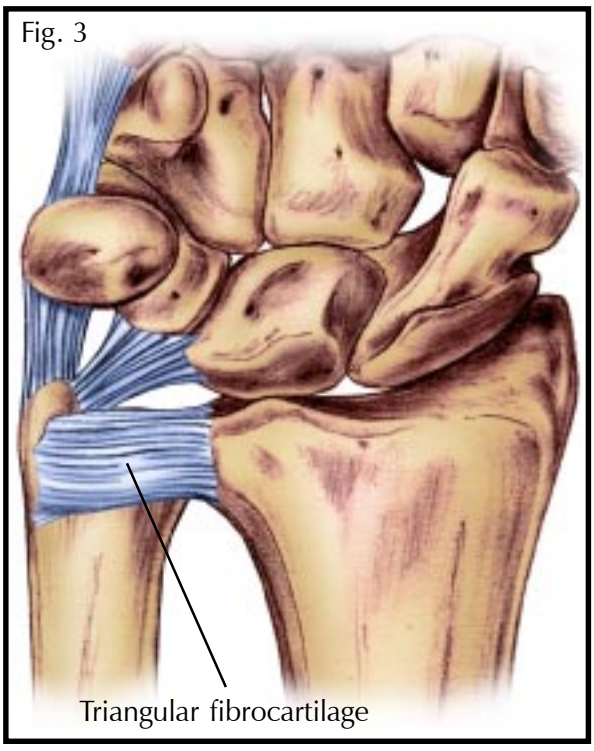


Fig. 3

Golfers can break their hamate, or wrist bone, with a "fat" shot or in cold weather when the hand strikes the hard ground with the club, the force is transmitted to the bone (Fig. 4). The butt of the golf club rests against the hook of the **hamate**, a bone in the wrist. Diagnosis is usually made by physical examination and confirmed with x-rays. If found and treated early, this fracture will heal in a cast. However, many hamate injuries are diagnosed late. In these patients, removing the bone to relieve the pain is sometimes necessary. Patients should understand that this bone is closely related to important structures of the hand, including the ulnar artery and ulnar nerve, and both structures can be involved in the injury or affected by surgical intervention.

Although golf injury is rare, the wrist is one of the most commonly injured anatomic locations in the sport. Wrist injuries can occur not only in the average golfer but also in the high-level professional. They are usually the result of overuse due to excessive practice, or excessive play or poor mechanics that place the wrist at risk. Nonsurgical treatment is usually effective; however, in some patients, surgical treatment is necessary to return the patient to play.

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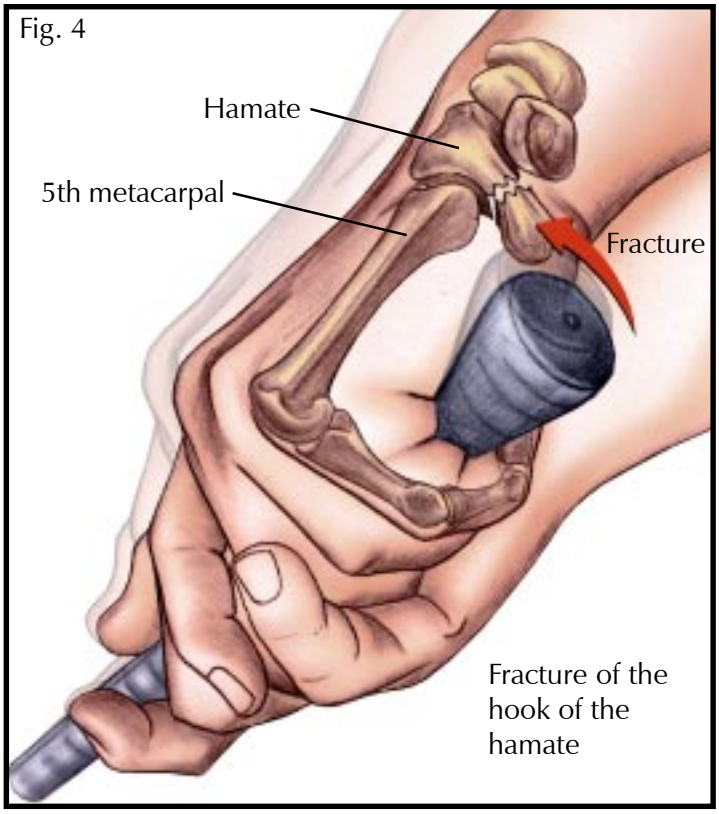

Fig. 4

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2. McCarroll JR. Golf: common injuries from a supposedly benign activity. J Musculoskeletal Med. 1986;3:9-16.

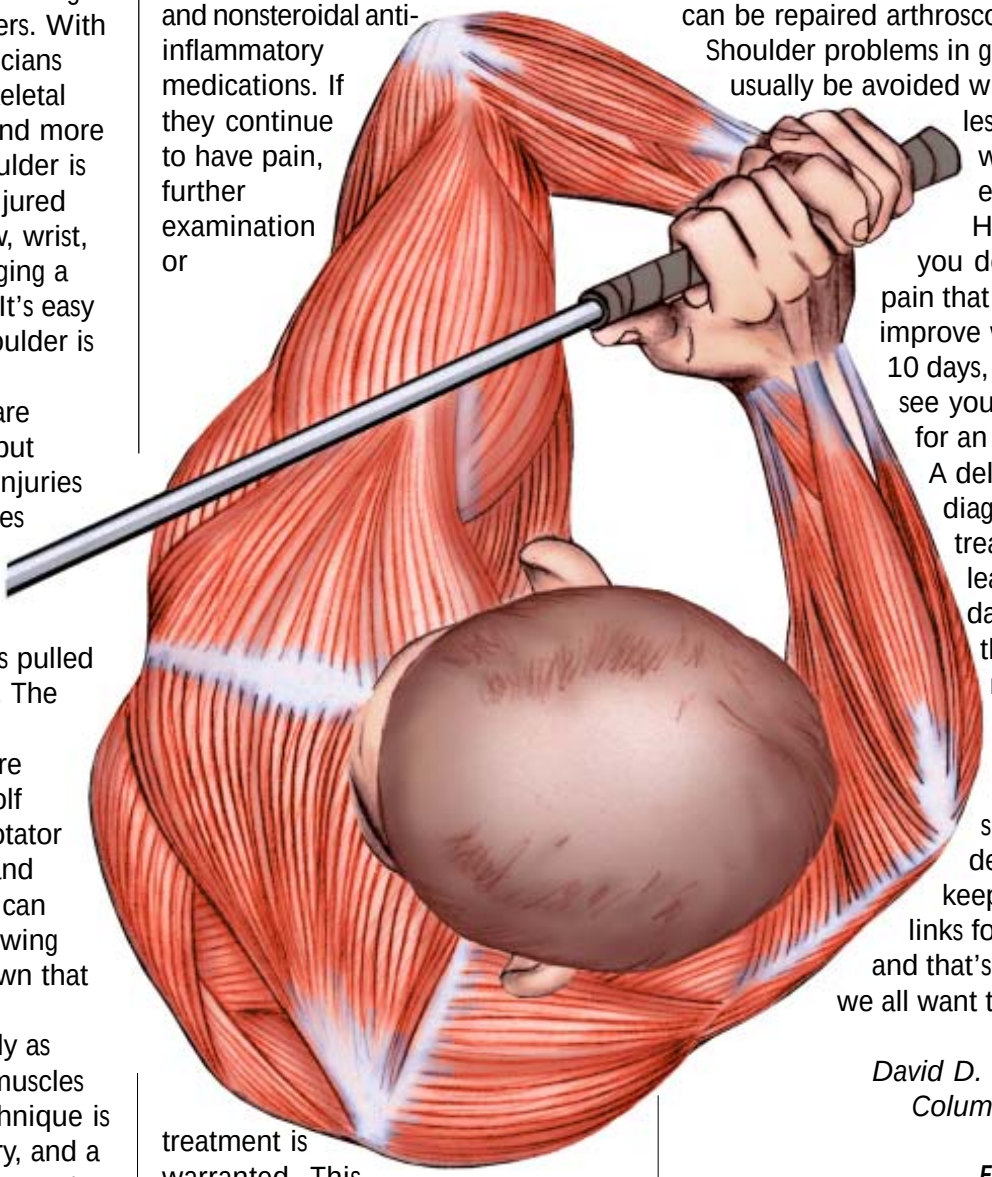
Shoulder Injuries in Golfers

Thanks in no small part to Tiger Woods, the popularity of golf is growing throughout the world. Children as well as adults are taking up the sport in record numbers. With the increase in players, physicians specializing in the musculoskeletal system will be seeing more and more golf-related injuries. The shoulder is the fourth most commonly injured site in golfers (after the elbow, wrist, and low back). Imagine swinging a club with a painful shoulder. It's easy to see how important the shoulder is to the golf swing.

Shoulder problems in golf are commonly overuse injuries, but traumatic injuries do occur. Injuries to muscles and tendons (tissues that attach muscles to bones) range from minor strains to complete tears. Strains occur when the muscle or tendon is pulled but does not completely tear. The rotator cuff muscles of the shoulder and their tendons are very active throughout the golf swing. Inflammation of the rotator cuff tendons, or **tendinitis**, and even tears of the rotator cuff can occur with overuse or poor swing mechanics. Studies have shown that compared with amateurs, professional golfers do not rely as heavily on their rotator cuff muscles during the swing. Proper technique is a first step in preventing injury, and a lesson from a golf instructor can get you started down the right path.

When one thinks about shoulder problems in golfers, it is important to consider the age and individual mechanics of each golfer. Injuries usually occur in the lead arm but can occur in the trailing arm as well. Younger golfers (less than 35 years old) are more likely to have problems with inflammation and strains, while older golfers may experience complete tears of the rotator cuff and degenerative changes in the joint, such as bone spur formation.

Initially, injured golfers should be treated with a decrease in their playing time, ice, physical therapy, and nonsteroidal anti-inflammatory medications. If they continue to have pain, further examination or treatment is warranted. This may include injections into the shoulder, x-rays or an MRI (magnetic resonance imaging) scan (test that shows the bones, muscles, tendons, and ligaments). If patients continue to have pain and dysfunction after a thorough treatment program, surgery may be necessary.



Subacromial bursitis which is persistent inflammation above the rotator cuff tendons, can be treated arthroscopically (examination or treatment of a joint through small incisions) by removing the inflamed tissue. Similarly, bone spurs that dig into the rotator cuff can be removed, or if a tendon is significantly torn, it can be repaired arthroscopically.

Shoulder problems in golfers can usually be avoided with proper lessons and warm-up exercises. However, if you do experience pain that does not improve within 7 to 10 days, you should see your physician for an evaluation. A delay in diagnosis and treatment can lead to further damage and the need for more involved treatment such as surgery. A delay could keep you off the links for a while, and that's something we all want to avoid.

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Further reading:
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Are You Ready for Golf?

Golf has been one of the fastest growing sports for the past five years. It attracts men and women of all ages. Golf once was considered a very easy, nondemanding sport that required no preparation, only practice. In reality, however, golf demands output from some of your body's major systems, including the cardiovascular (heart) system, musculoskeletal (muscle and bones) system, and the neurologic (brain and nerves) system. These are the same systems that are challenged in football, soccer, basketball, and many other high-impact sports. Now ask yourself: do the athletes who play these sports have to warm-up and train? The answer is yes, for all these sports as well as for golf. Many quick and easy programs have been developed for golfers to warm-up once they reach the practice tee, but to reach your maximum potential while preventing injury, readiness must occur before you reach the golf course.

An average golf game takes four hours a round, which means you need the cardiovascular endurance to maintain your stamina and strength to finish the back nine as strong as the front nine (although maybe not on the score card!). For cardiovascular training, simply walking 20 to 30 minutes, 2 to 3 days a week, is sufficient. As always, before beginning any exercise program, you should see your physician. Once your doctor gives you the go ahead, start by timing yourself for 1 mile at a comfortable pace for 30 minutes. By walking 3 days a week, you progress by decreasing the time it initially took for the first mile. When you finish your walk in less time, continue at your new pace for 30 minutes, 3 days a week.

It is equally important to train your musculoskeletal system, which gives you the strength and muscle power you need for golf. The exercises below should be performed for 3 sets of 10 repetitions, with a 3-second hold after each repetition and a 30- to 60-second rest between sets. The resistance can come from weights or resistance bands such as Theraband or Theratubing. If you are allergic to latex, use a latex-free device (Theraband and Theratubing can be made of latex).

If you practice this exercise program consistently, it will dramatically increase the strength and endurance you have to complete a round of golf. You will also feel better and, less stressed, and you will be less prone to injury. If you do pre-golf stretching and hit balls on the practice tee, continue with your warm-up program, but remember, real golf readiness occurs before you arrive at the course.

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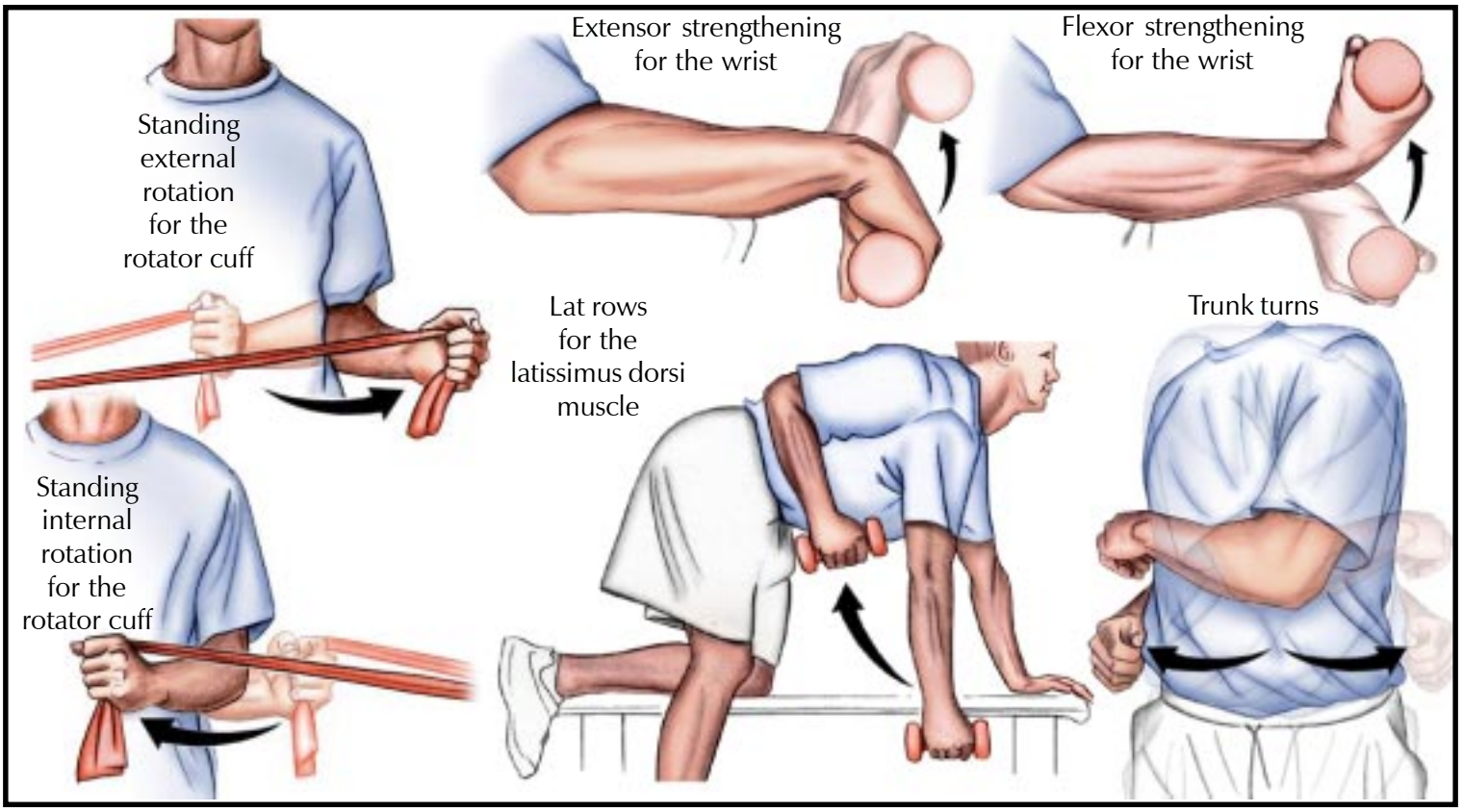
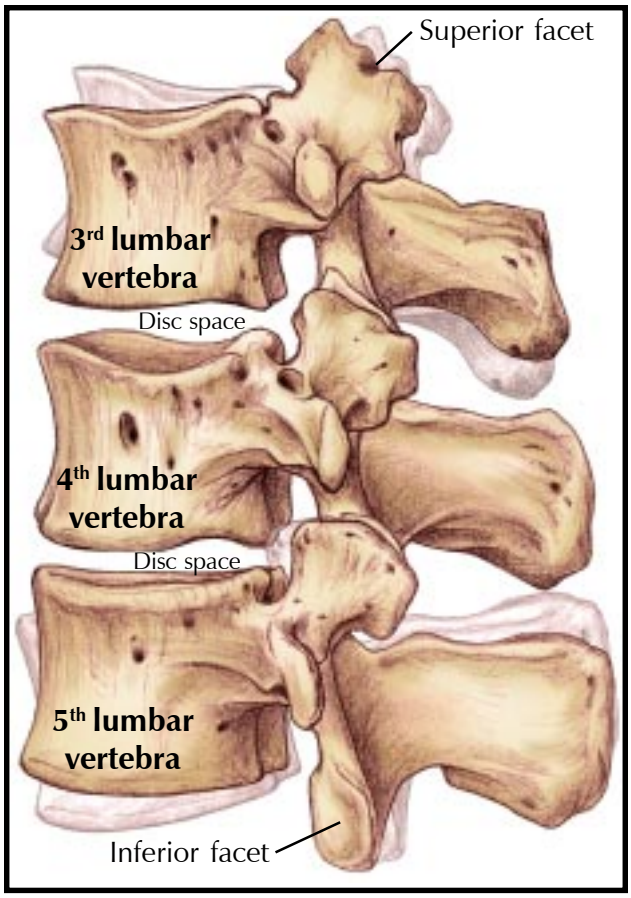


Lumbar Pain in Golfers

Many well-known professional golfers, such as Jack Nicklaus and Fred Couples, are plagued by back pain. If the professional golfer, who has excellent swing mechanics and is physically fit, can have low back problems, the recreational golfer is certainly not immune to these problems. The professional golfer tends to develop low back pain from overuse, while the recreational golfer develops low back pain from sporadic play, poor swing mechanics, or a poor physical fitness level.

During one's daily activities, the spine is able to withstand a certain amount of stress. Each individual has a different spine tolerance level, depending on age, body type, and fitness level. As one goes beyond his or her tolerance level and overloads the spine, stiffness in the facet joints occurs. The **facet joints** are flat, platelike surfaces connected to the vertebrae (Fig.). The muscles that stabilize, protect, and guard the irritated joint can, over time, become irritated, causing pain.

After a physician's diagnosis of lumbar pain, the patient is often referred to a physical therapist, who completes a thorough evaluation to check flexibility and strength and specifically assess the movement of the facet joints. If a dysfunction or lack of movement of the facet joint is found during the evaluation, manual therapy is performed to restore normal movement of the joint. A home exercise program for lumbar flexibility and strengthening is usually prescribed. Once the facet joint dysfunction is resolved, the patient's pain and mobility improve. Additionally, many golfers find that their swing improves after their dysfunction is resolved.



Weekend golfers who have poor swing mechanics, lack fitness, or do not warm-up properly are more likely to injure themselves. Poor swing technique causes strain on the low back. Taking golf lessons to learn the proper mechanics can prevent low back pain. Golfers with poor swing mechanics tend to swing harder, causing larger spinal loads and increased muscle activity, resulting in more stress to the lumbar spine.

Golfers with degenerative disc disease or arthritis in the lumbar spine are more susceptible to overloading their spines. The discs lose their shock-absorbing capabilities, and the loads are transferred to other structures within the spine that are unable to withstand these forces. A poor golf swing causes large shearing, compression, and torsional forces on the low back.

An exercise program for the full body will strengthen and increase trunk, buttock, and lower extremity flexibility. Aerobic conditioning is also extremely important. Walking is a great exercise for increasing muscle endurance and delaying the onset of muscle fatigue — one of the primary causes of injury. It is also important to know one's physical capabilities. A weekend golfer with poor physical fitness should not try to play longer or harder than his or her body can handle. As fatigue sets in, so do poor mechanics, leading to stiffness in the spine and resulting in low back pain.

Before playing golf, warm-up exercises should be performed to increase flexibility and blood flow. Exercises should include neck range of motion, shoulder stretches, trunk side-bends and rotations, and hamstring stretches. A golfer should also spend a few minutes at the driving range, putting and driving before the game begins.

Golf can be enjoyed with less chance of low back pain through a good fitness program during the week, use of proper swing mechanics, and warm-up exercises before tee off. If you are having back pain, see your physician and physical therapist to obtain a diagnosis and to be properly treated. Then you can play a pain-free game.

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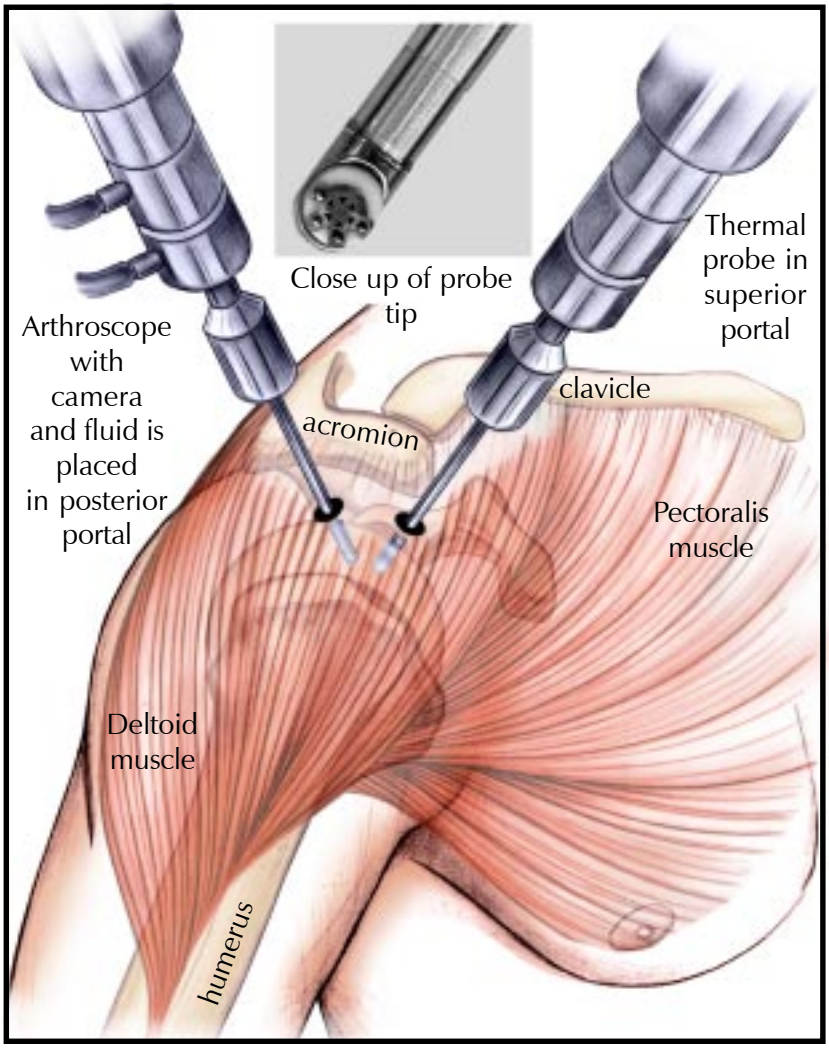
Thermal Surgery

Back in the Middle Ages, physicians treated a patient with an unstable, or loose, shoulder by placing a hot poker in the patient's armpit. The tissue reacted by forming a large scar that limited motion of the shoulder, and thus, the shoulder was less likely to dislocate again. We have come a long way since then, but the idea of using heat, or thermal energy, to treat a disorder of the joint is alive and well.

Over the past ten years, orthopaedic surgeons have increasingly used thermal energy to treat various problems of the musculoskeletal system. Instead of the hot poker, we now use small probes no larger than a pencil. Almost always, thermal surgery is performed arthroscopically (through small incisions in the skin). This method allows fluid to flow continuously through the joint, helping to keep the temperature from getting too hot. Different temperatures are used to achieve different goals.

Thermal energy can be used in several ways. First, it is commonly used to remove unwanted tissue. For example, a torn cartilage in the knee can be removed by touching it with the heating probe. This method is very precise, and many surgeons feel they can "fine tune" the surgery better than with traditional methods. An additional benefit of thermal surgery is that the heat itself decreases bleeding by sealing the ends of small blood vessels. With less blood in the area, the surgeon can see better and the surgery takes less time.



Another use of thermal surgery is in treating mild cases of arthritis. The ends of your bones are covered with shiny, smooth tissue called **articular cartilage**. With wear and tear, this cartilage can become frayed and rough, causing arthritis. Thermal probes are used to treat the cartilage before it degenerates too much. The hope is to create a smoother, stable surface that is less likely to degenerate in the future.

Finally, one of the most popular uses of thermal surgery is to shrink the soft tissues of the joints to make them more stable. This technique is most commonly used in the shoulder but has been used in the ankle and hip as well. After an injury, a ligament can become stretched, causing the normally stable joint to "give way." Applying the probe to the stretched ligament causes the ligament to become shorter and tighter, making the joint stable again. Thermally treated ligaments need to be protected for several weeks or they can stretch back out. For this reason, your doctor may significantly limit your activity for a period of time after the surgery.

As with any surgery, there are concerns such as infection. Problems can also occur from the thermal energy itself. If too much heat is applied, death of the cartilage, ligament, or bone can occur. There have also been reports of the skin being burned if the probe gets too close to the skin. Furthermore, if thermal energy fails to "tighten" a joint, the traditional surgery may be more difficult due to the thermally damaged tissue. However, when performed by an experienced orthopaedic surgeon, thermal surgery has a low risk of complications such as these.

Thermal surgery is definitely a "hot" topic in orthopaedic surgery. At the present time, it is primarily used for tissue removal and tissue shrinkage. Continued research will provide more answers and, we hope, make it safer and more effective.

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Water Versus Sports Drinks

In the 1960s, a nephrologist (kidney expert) who helped care for student athletes at the University of Florida developed a drink that he hoped would be close to the fluid most needed to refresh the exercising human body. The product was named Gatorade® by merging the university's mascot, the Gator, and a then popular fruit flavored drink, Kool-Aid®. Since the late 1960s, the marketing and advertisements for this and competing sports drinks have contributed much neo-science in an attempt to convince consumers that sports drinks not only are beneficial but are necessary for top performance.

The sports science laying the foundation for these replacement drinks is fairly simple. The body is 95% water; circulating blood and even the cytoplasm in each cell contain water that is very similar to saline or sea water. As the body heats up during work or exercise, the optimal core temperature is maintained by dispersing heat through evaporating sweat from the body's surface. Sweat contains water and salts, both of which must be replaced or body function will begin to decrease.

Depending on the climate, the amount of work done, and the sweat lost, people may need to make a conscious effort to replace the lost water and salts. Here the debate begins: What is the ideal replacement fluid? Those who say water is best rely on the fact that the average American diet already contains an excess of sodium, 8 – 20 grams of dietary salt, when the daily need is only 0.5 – 1 gram. Additionally, water is found everywhere and is very cheap. This low-tech approach is scorned by the sports drink advocates, who say athletes won't drink enough water because it's "just water" and that their product also replaces the necessary substances like potassium and adds some fuel as an additional advantage. The rebuttal from the water supporters includes an explanation that the fuel is just simple sugar and certainly not enough to offset the caloric needs of the athlete. Regardless of opinion, the exercising body needs to have some liquid replaced, and a little sugar and salt do not seem to cause any harm. You can also make water more palatable. It should be cool but not cold, very lightly flavored but not sugary, and many people advocate coloring it for eye appeal. The key to making water effective as a fluid replacement is to drink it early and often but without causing a dilution of the body's sodium.

Today, teams ranging from recreational soccer to professional basketball use commercial sports drinks. Product logos are well known, and companies often sponsor the sport science research designed to prove their industry's claims. Often, the low-tech advocates for water are overwhelmed by money, advertisements, and even sports politics that are stacked against them. We should remember, however, that water was the original sports drink.

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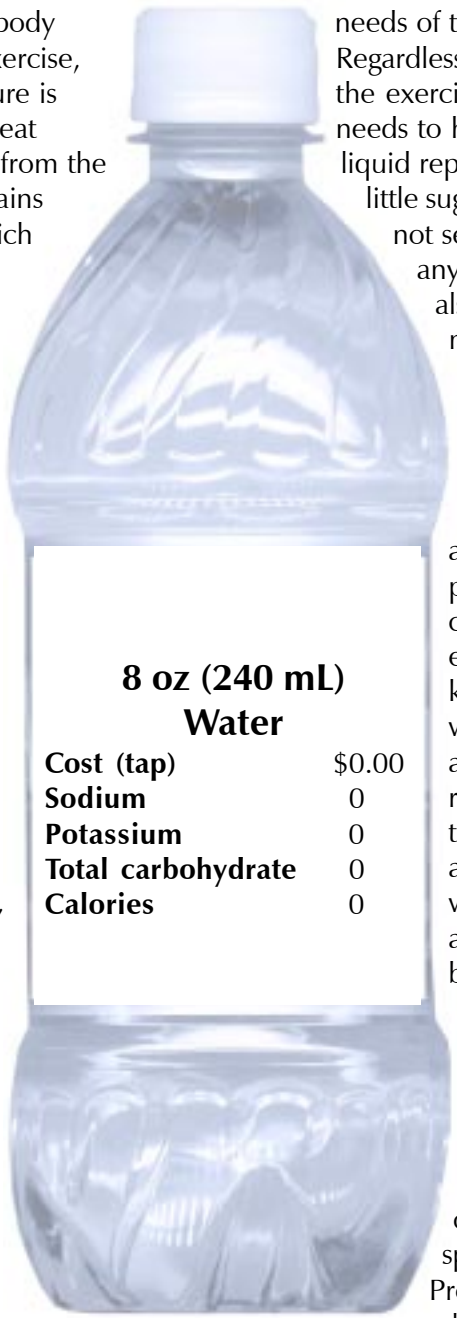
8 oz (240 mL) Sports Drink

Cost	$2.00
Sodium	110 mg
Potassium	30 mg
Total carbohydrates*	14 gm
Calories	50

**Carbohydrate from sucrose syrup, glucose-fructose syrup.*



8 oz (240 mL) Water

Cost (tap)	$0.00
Sodium	0
Potassium	0
Total carbohydrate	0
Calories	0

Lightning Golf

A golfer should never race a thunderstorm to the end of a round or even to the next hole. It's much too dangerous. In the U.S., lightning is ranked second only to floods as a major cause of weather casualties. A golf course, with its ground elevations, open fields, isolated trees, golf carts, and water, provides the perfect environment for lightning injuries. You should never stay on an open course when lightning can be seen or thunder can be heard. At that point, you are already at risk.

At your first glimpse of lightning or the first rumble of thunder, seek shelter immediately. The best shelter is a large, closed-in building such as the clubhouse. Avoid isolated trees and water. If you are caught out in the open in a thunderstorm with no shelter nearby, find a low place, such as a ravine or valley. You should crouch down so that you are not the highest object. You should also avoid metal in a thunderstorm. Move away from your golf cart and your golf clubs and, if your golf shoes have metal spikes, take them off.

If a thunderstorm threatens your game, don't try to finish it in lightning speed. Instead, pack up and head to the clubhouse, where you can safely wait out the storm and live to play another day.

The *Hughston Health Alert* is a quarterly publication of the Hughston Sports Medicine Foundation, Inc. The Foundation's mission is to help people of all ages attain the highest possible standards of musculoskeletal health, fitness, and athletic prowess. Information in the *Hughston Health Alert* reflects the experience and training of physicians at The Hughston Clinic, P.C., of physical therapists and athletic trainers at Rehabilitation Services of Columbus, Inc., of physicians who trained as residents and fellows under the auspices of the Hughston Sports Medicine Foundation, Inc., and of research scientists and other professional staff at the Foundation. The information in the *Hughston Health Alert* is intended to supplement the advice of your personal physician and should not be relied on for the treatment of an individual's specific medical problems.

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Suggested readings and classic references for articles contained in this issue can be found at
www.hughston.com

Health Hint

You can beat the heat and sun during your summer golf games with just a little preparation. On hot and humid days, wear a short-sleeved, light-colored, cotton shirt and cotton shorts or pants. Use sunscreen on the exposed parts of your head, neck, arms, and legs, and protect your lips with a lip sunscreen. Playing early in the morning or during the evening hours just before dark will help you to enjoy your game while beating the heat!

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