



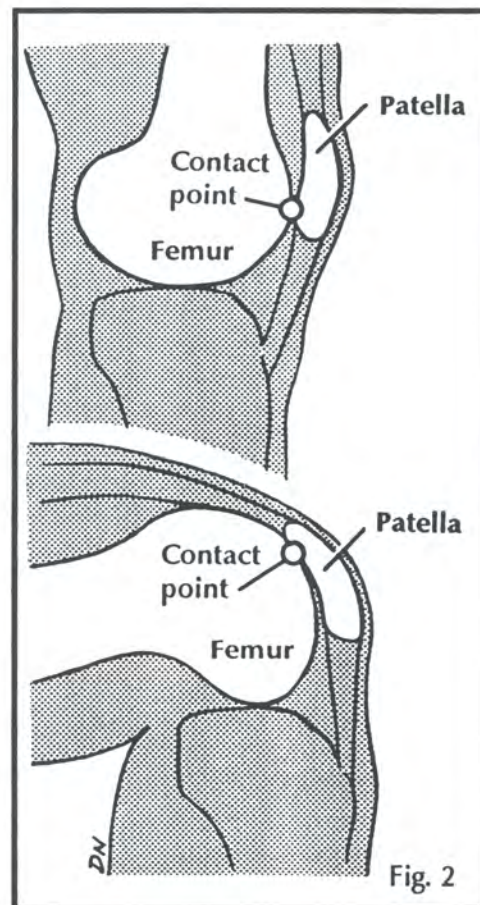
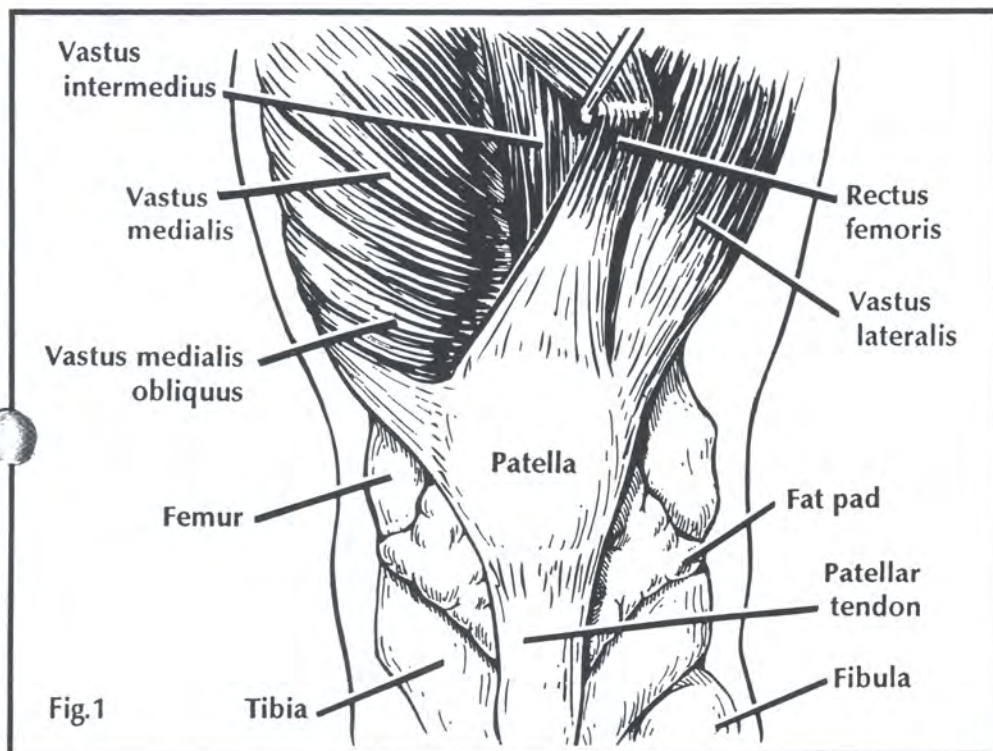
Hughston Health Alert

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For a Healthier Lifestyle

FALL, 1991



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Curing Knee Pain With Tape: The McConnell Program

"My knee hurts when I squat, go down stairs, or sit with it in a bent position for a long period of time." These are common complaints that we hear from individuals with anterior knee pain. *Anterior knee pain* is a catch all phrase that usually refers to pain on and around the inside of the patella (knee cap).

The patella is a free-floating bone that sits on top of the actual knee joint. It is controlled by the largest muscle mass in the body, the quadriceps, which is made up of four separate muscles (Fig. 1). As the knee bends and straightens, the point of contact between the patella and the femur moves up and down in a bony trough called the patellofemoral groove (Fig. 2). These muscles all

work together to help the patella move, or track, normally.

The outside muscles have a slightly stronger pull than the inside ones. Therefore, any weakness in the pull of the inside muscles can cause the patella to track laterally (Fig. 1). The inside muscle, which plays a very

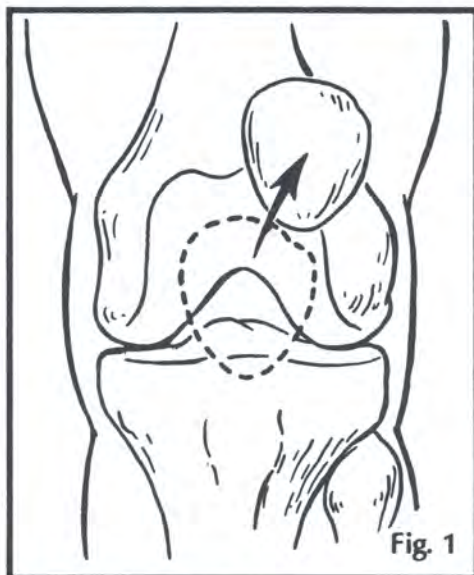


Fig. 1

important part in holding the patella in its groove, is called the vastus medialis obliquus, or VMO. Vastus medialis obliquus weakness caused by a bump on the knee, swelling, or previous surgery can cause the patella to be pulled to the outside and out of its normal groove. This abnormal movement causes pain by irritating the sensitive lining of the knee joint. This lining serves as a lubricating mechanism for the joint. In extreme cases, abnormal movement can also lead to cartilaginous changes on the back of the patella when the patella bumps against the femur.

Patellofemoral pain can also be increased by any abnormal tilt of the patella caused by tightness of the joint lining around the patella or the strong pull of the lateral muscles overpowering the VMO. Individuals who have loose joints may have excessive extension of their knee in which the patella sits downward, pressing on the fat pad—a sensitive

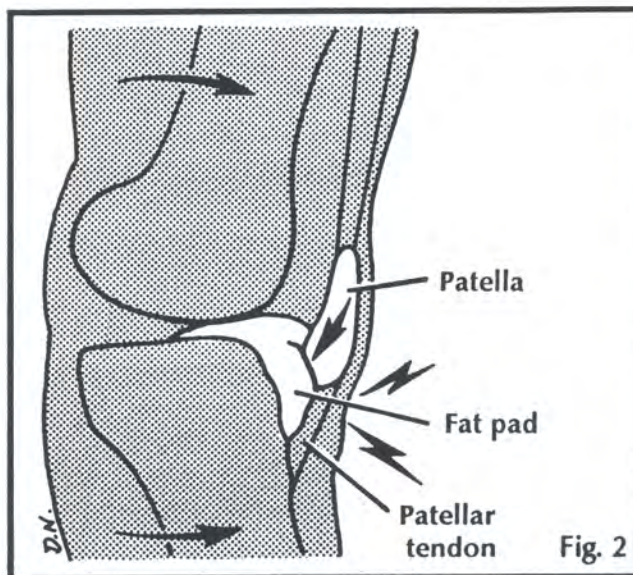


Fig. 2

structure lying behind the patellar tendon (Fig. 2). Any of these situations can cause the knee to function improperly, resulting in anterior knee pain.

The first goal of physical therapy in these patients is to normalize the position of the patella. Once this is achieved, the patient is able to exercise with no pain. Second, the muscles need to be specifically retrained to maintain this normal position during motion. Standard knee exercises strengthen the stronger lateral muscles but do not address the problem of VMO weakness.

Jenny McConnell, a physical therapist in Sydney, Australia, developed an exercise program that

uses taping to normalize the position of the patella and strengthening exercises for retraining the proper muscles. Everyone's patella is different, so each program must be individualized. First, the physical therapist assesses the position of the patella and corrects it by using special tape*. The knee is covered with a protective white tape that acts as a stabilizer (Fig. 3A). Next, a specially manufactured brown tape, Leukotype P

(Beiersdorf, Inc., Norwalk, Connecticut), is applied (Fig. 3B). Although the tape does actually move the patella into a normal position, its main function is to squeeze or stimulate the VMO rather than simply holding the patella in place. With the knee taped, a series of exercises are performed with the foot on the floor in a weight-bearing position (Fig. 4). These exercises are more functional since we usually use our muscles in a standing position. Once the patient is able to contract the VMO with basic exercises, the patient progresses to activities such as walking, biking, and even aerobics with continued emphasis on proper contraction of the VMO.

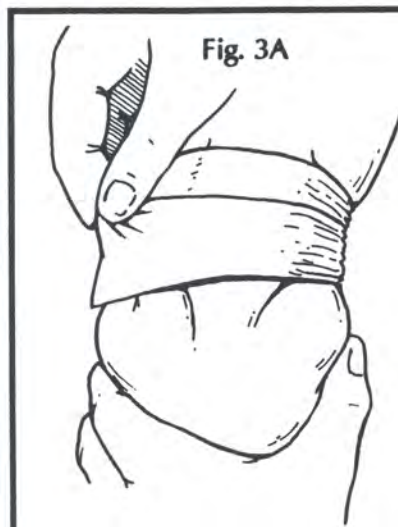


Fig. 3A

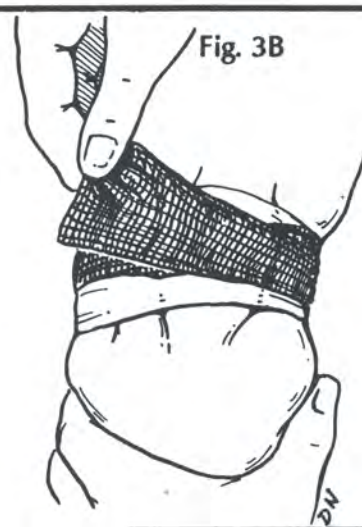


Fig. 3B

The tape is worn every day for two weeks, weaning to every other day for one week. After that, the tape is worn only with activity or sports until the anterior knee pain is gone.

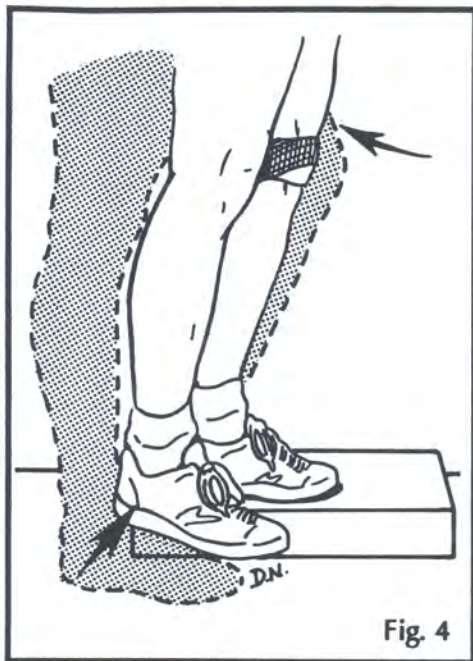


Fig. 4

In many cases the tape itself relieves knee pain, but it is no substitute for proper exercise. Hard to believe tape can really help the knee function properly? Ask Martina Navratilova . . . she won Wimbledon with her knee taped!

*Dianne Bazor, P.T.
Columbus, Georgia*

***Rehabilitation should be initiated under the supervision of a physician and a therapist.**

Lasers in Medicine: Surgery Without the Knife

In simple terms, a laser is a directed beam of light energy. A laser differs from ordinary light in that laser light consists of parallel beams of synchronized light composed of a single wavelength and, thus, a single color. Light is the most abundant, primary source of energy, and the particular wavelength determines many of its characteristics. Only a small portion of the spectrum of light, ranging from the short wavelengths of ultraviolet to the long wavelengths of radio waves.

The term laser is actually an acronym for light amplification by the stimulated emission of radiation. Although the scientific principles upon which lasers are based stem from Einstein's theories in the early 1900s, the first laser devices were not produced until the 1960s. Laser light is produced by "energizing" a particular substance or medium to stimulate its electrons to a higher energy level. As the electrons in this medium return to their resting state, they emit packets of energy called photons that can be synchronized and directed to produce a beam of laser light.

One of the theoretical advantages of lasers is that this energy source can be focused and intensified to a particular portion of body tissue. The characteristics of the laser and the object upon which the laser beam is directed dictate whether the laser light is absorbed, reflected, transmitted, or scattered. When the laser light is absorbed, it heats the body tissue. The heat can be controlled to cut, coagulate (weld), or vaporize the body tissue. By directing and modifying this laser light energy, the physician can produce the desired effects upon specific tissues. Thus, surgery is performed with a beam of light rather than a knife.

The earliest medical use of lasers was in eye surgery. Current applications have expanded to include dermatology, neurosurgery, gynecology, and cardiology. Lasers are relatively new to the field of orthopaedic surgery, and research is presently underway to determine what advantages laser surgery may have over conventional methods. Theoretical advantages include diminished bleeding, less scarring and swelling, improved precision, and possibly, reduced pain. Unlike x-rays, lasers do not produce ionizing radiation with its potential for harm from excessive exposure.

Current and potential uses of lasers in orthopaedics include arthroscopic surgery, soft tissue surgery, and joint reconstruction. In orthopaedics as in other fields of medicine, the laser should not be viewed as a panacea or a magic wand. Rather, it should be recognized as a new tool to be used by an experienced, well-trained physician.

*Robert R. Burger, M.D.
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Acromioclavicular Joint Injury

A fall directly onto the shoulder can cause injury to the acromioclavicular, or AC, joint. Although often responsive to nonsurgical treatment, some of these injuries may be severe enough to require surgery.

If you trace the clavicle (collarbone) to its outermost point at the shoulder where it joins the acromion, which is part of the scapula (shoulder blade) you have located the AC joint (Fig. 1). It is a very stable joint that is held in place by strong ligaments at the end of the clavicle and a ligament located along the length of the clavicle that attaches to the coracoid process, a projection of bone from the shoulder blade.

Injury to the AC joint can be caused by a blow that creates a bruise or by stress that pulls the joint apart. A partial or complete tear of any of the AC joint ligaments constitutes a shoulder separation. The severity of the injury is usually in direct proportion to the force of the fall or blow.

The signs and symptoms of a bruise and a sprain are similar. The joint is tender to the touch, slightly swollen, and painful when the arm is lifted higher than the shoulder. Treatment is application of ice packs to the joint twice a day for 20 minutes. This is continued for 5 days. Passive range-of-motion arm exercises should be used to maintain flexibility, and padding should be applied over the joint when the person returns to full activity.

Shoulder separations are classified according to the severity of injury to the ligaments of the AC joint. In a type 1 separation, some of the ligament fibers are torn, allowing the clavicle to rise out of its normal position with the acromion (Fig. 2). This can be determined by pushing the clavicle down and watching its end for motion. The joint will be painful with motion and to the touch. Treatment consists of ice packs and an AC brace to keep the clavicle in its proper position for 3 to 4 weeks.

In a type 2 injury, complete tearing of the acromioclavicular ligament causes deformity (Fig. 3). The clavicle rides high and arm motion is very painful. X-rays confirm the displacement, and surgery may be necessary to repair the tear. Some physicians prefer to place the patient's shoulder in an AC brace, such as the Kenny Howard type, for six weeks (Fig. 4). Frequent monitoring of the patient is important to make sure no changes take place in the position of the joint.

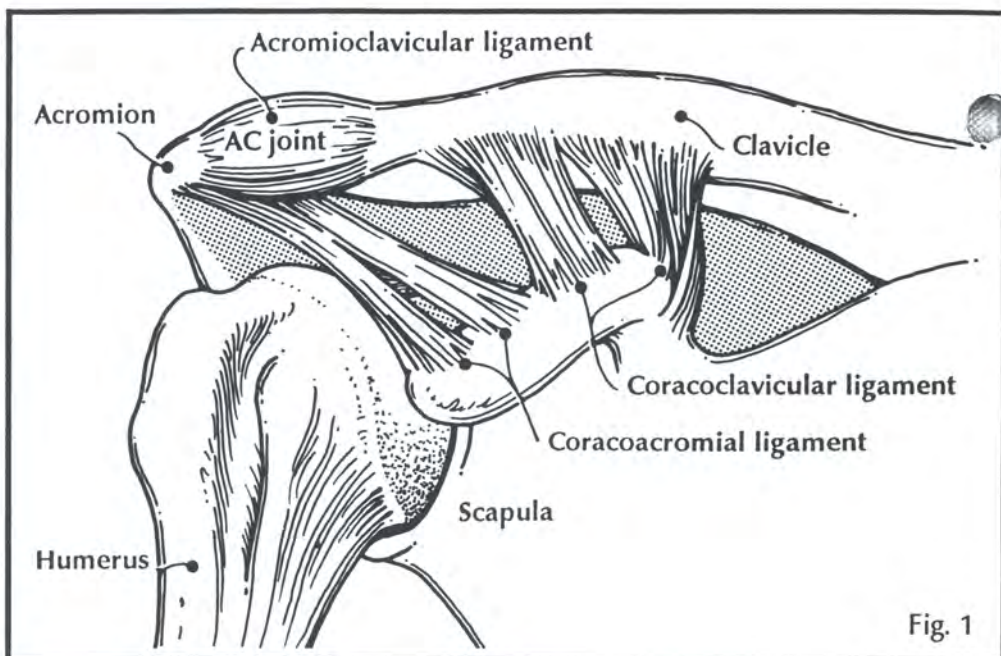


Fig. 1

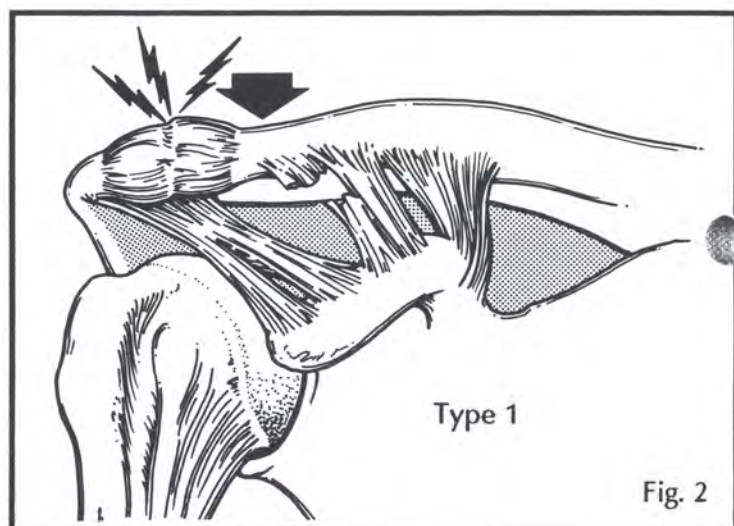


Fig. 2

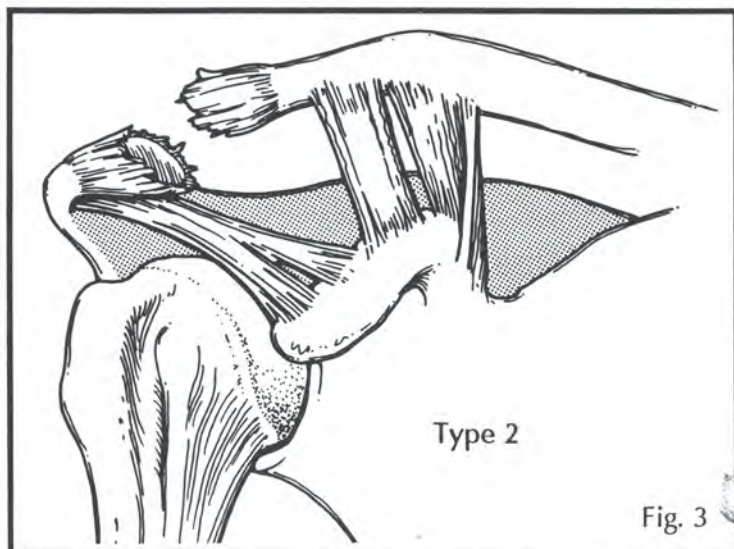
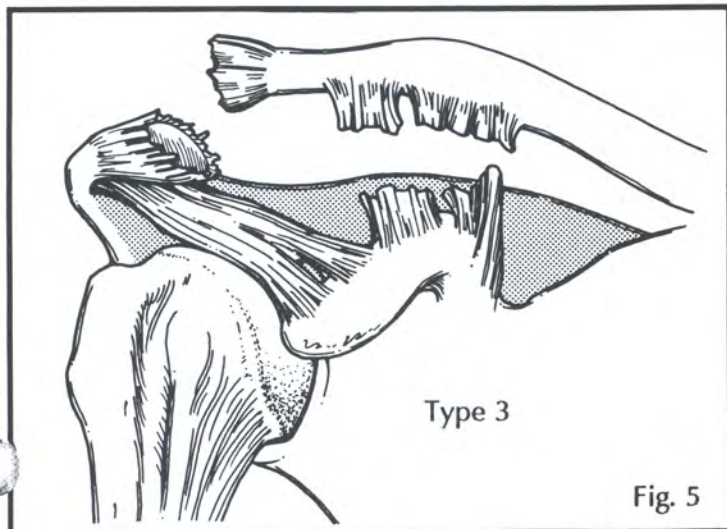


Fig. 3



Fig. 4 Nonsurgical treatment

In injuries that are classified as type 3 or above, all the ligaments are disrupted, allowing the clavicle to move freely in all directions (Fig. 5). These injuries are diagnosed by deformity and by x-ray. Treatment is most often surgery, particularly for young, active patients, throwing athletes, or heavy laborers. Unlike his recent highly publicized hip injury, which was treated with rest and exercise, the type 3 injury Bo Jackson sustained during his

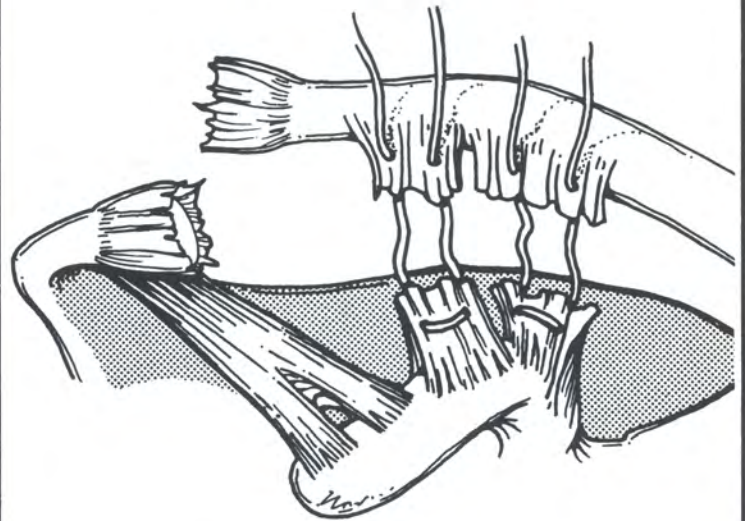


college career was treated successfully with surgery at the Hughston Clinic. Bo went on to win the Heisman Trophy on the way to his professional career in two sports.

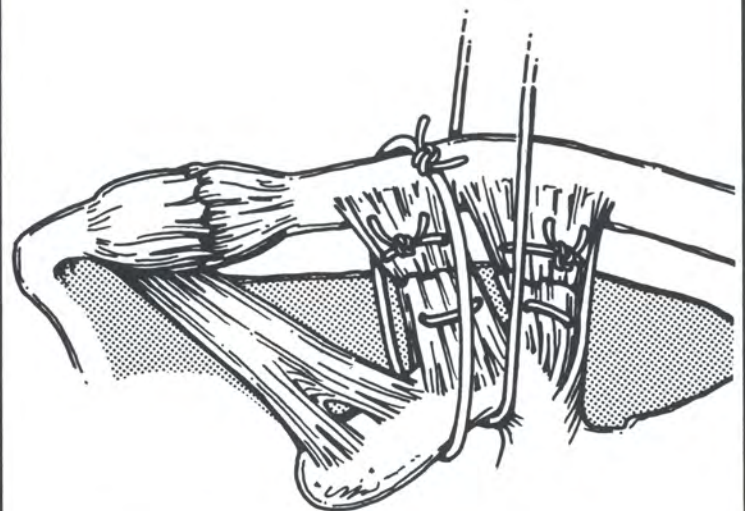
Other than avoiding some of the high risk activities, prevention of these injuries can sometimes be enhanced by learning tumbling techniques to be used in a fall.

Kenny Howard, A.T., C.
Auburn, Alabama

Surgical treatment



Suturing the torn ligaments.



Wiring the clavicle and coracoid process.

Hip Pointers: A Bruise Unlike Any Other

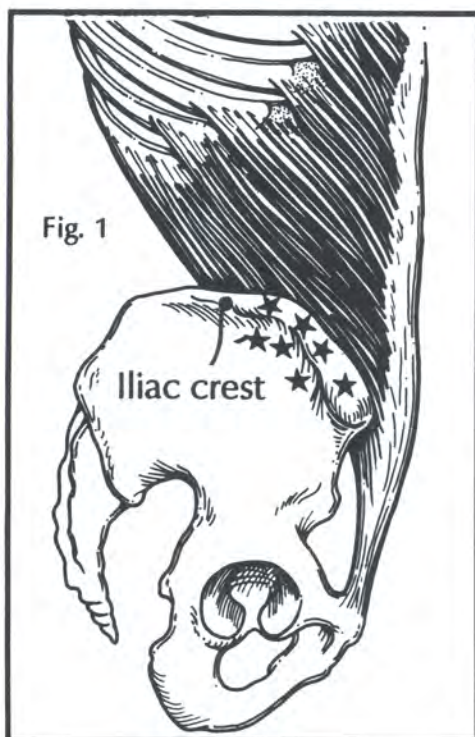
It turned out to be just a bruise to the hip bone, but for a few moments after the tackle he could not even breathe. That all too common scenario accompanies the hip pointer—an injury seen frequently during the fall season when more contact sports such as football are played. Despite the use of padding, a forceful direct blow to the top of the pelvic brim (called the iliac crest) can cause this injury. The blow results in a bruise or contusion of the muscles that insert on this area of bone, and in severe cases, a bruise to the overlying bone covering, or periosteum, itself (Fig. 1).

The injury can be temporarily disabling because of intense pain and associated muscle guarding. The injured person often stands or walks with the trunk flexed toward the side of injury, and pain can even inhibit deep breathing and coughing. Examination by a physician reveals extreme tenderness at the iliac crest

with overlying swelling. The muscles of the abdomen may be held rigid, since motion causes pain. There may also be associated guarding in the gluteal muscles because they originate from the same area of injured tissue (Fig. 2). X-rays may be necessary to make sure that the underlying bone has not been fractured.

Treatment begins with compressive bandages, application of ice, and in some instances, anesthetic or cortisone injections into the area for pain relief. Oral anti-inflammatory medication is used to decrease swelling and reduce pain. After the pain is relieved, gentle stretching of the muscles is necessary to relax any tightness that may be present. Depending on the severity of injury, the athlete is usually ready to return to competition within 7 to 14 days. However, a pad should be worn and the area should be taped for added protection until all tenderness and swelling are gone.

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Sever's Apophysitis

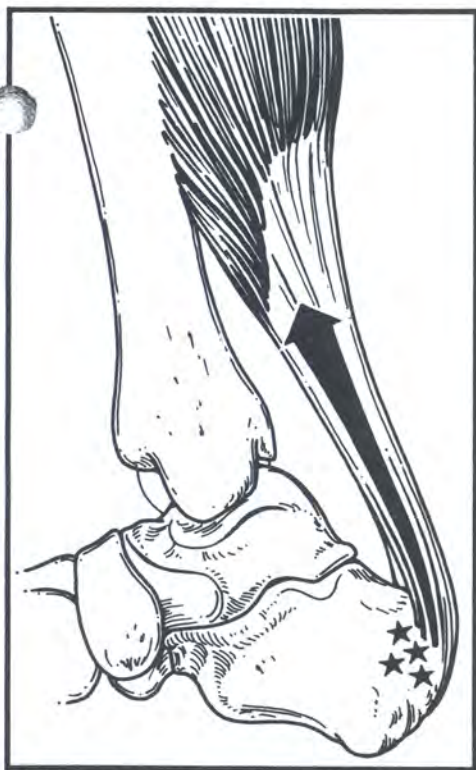
Sever's apophysitis, or Sever's disease as it is often called, is an inflammation of the apophysis of the calcaneus. This apophysis is the bony projection where the Achilles tendon attaches to the calcaneus (heel bone), (See opposite page).

Sever's apophysitis is a common cause of heel pain, particularly in the athletically active child and adolescent. This is one of the overuse syndromes found in active, rapidly growing children and adolescents; it is second to Osgood-Schlatter's apophysitis in occurrence. The condition usually occurs in children with open growth plates between the ages of 8 and 13, but sometimes affects children who are younger or older.

Symptoms usually appear at the beginning of a sport season or during a period of high activity or intense training in sports such as soccer that involve running. Although the precise cause of this condition is not known, it is thought that the repeated pulling of the Achilles tendon on the calcaneal apophysis causes inflammation. Pain and limping are the most common complaints in these youngsters, and often the sore heel is accompanied by some swelling that is worsened by standing after a period of rest.

A physician can usually make the diagnosis from the patient's history of a recent growth spurt and a physical examination that includes painful heel compression and decreased flexibility of the ankle. The problem may be present in both heels at the same time and some hardening of heel tissue may be found. X-rays are necessary to rule out other possible causes of heel pain, such as a stress fracture, an infection, or a tumor of the calcaneus.

Frequently, the child has tight heelcords. Treatment may include



elevation of the heels by orthotic supports, and a therapist can instruct the patient in heel cord stretching to lessen the pull of the Achilles tendon on the apophysis.

Strengthening and stretching during rapid growth phases can help children and adolescents avoid the "growing pains" of conditions such as Sever's and Osgood-Schlatter's apophysitis. Relieving the tightness of major muscle groups that comes with decreased range of motion in the growing athlete is the key to preventing these problems.

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Safety Precautions on the Playing Field

Many of the sports-related injuries that occur each year are the result of hazards on the playing field. Sixty-

eight percent of high school football injuries occur during practice. These findings were reported in a study released by the National Athletic Trainers Association. Because so much of a team's time is spent during practice on their home field, coaches would be wise to check the field for hazards before practice as closely as they would before a game.

Many aspects of the playing field should be considered prior to its use. The first is the contour of the field. Typically, there is a crown on the field to assist drainage. Standing water on the field when it is not raining requires immediate attention to prevent injury.

Fields with unlevel surfaces can also be dangerous to athletes. Another concern is an in-

ground sprinkling system. If one of the sprinklers projects from the ground, no activity should occur on the field until the sprinkler is safely relocated or is placed in its proper underground position.

The condition of the playing field should be of utmost concern. The playing surface should be checked for holes, rocks, loose sod, and other potential injury hazards, and these should be corrected prior to any activity on the field. The markers and other fixed objects on a field should be appropriately padded; for example, goal posts should have thick padding around the lower half to protect participants from serious injury in a collision. Flags used to mark end zones or other areas should be placed firmly in the ground; however, they should be flexible enough not to injure an athlete in case of contact. On a baseball field, dugouts should have wire caging in front to protect athletes from a foul ball or wild throw. Baseball and softball bases should be the break-

away type to prevent sliding injuries.

At high school facilities, football fields frequently lie inside of the track. Safety concerns in this situation include protruding metal objects, such as are found in a discus or shot-put circle. Sand pits and asphalt surfaces such as those needed for the high jump or long jump event can also be hazardous. These areas must be marked or covered to protect participants and to eliminate preventable injuries.

The playing field for any sport should be correctly marked as described in the appropriate rule book. A reasonable and protective

distance should be established and maintained between the playing field and the athletes on the sidelines. Spectators should also be kept

at a safe distance. Allowing spectators near the field during an event can be dangerous for both participants and spectators. Spectators are easily distracted by talking to each other and can be hit with a ball or by one of the participants.

Proper care of a field is also helpful in preventing injuries. Appropriate watering, cutting, seeding, and fertilizing ensure the best possible playing conditions, as well as adding years of use to the field.

This information should not be considered as all inclusive, but as a starting point in making the playing field as safe as possible for all participants during practice sessions as well as during official games. Many of the serious injuries that occur every year can be prevented with proper care of facilities and fields.

*Timothy Uhl, P.T., A.T., C.
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New Books

High Fit - Low Fat Cookbook, by Lizzie Burt and Nelda Mercer, M.S., R.D., Favorite Recipes Press, Nashville TN, 1989

This attractively illustrated cookbook will appeal to the experienced culinary artist as well as to the novice cook. The recipes are interesting, but at the same time they are easy to prepare and require little preparation time. Many of the recipes have italicized inscriptions that add a special and helpful tip! The herbs and spices section is a great reference source. It allows the cook to add variety to the recipes and gives hints for creating new recipes. A "special occasion" section includes menus with accompanying recipes allowing the hostess to serve beautiful and tasty meals that are low in calories and fat. Following each recipe is its nutrient content, including ADA (American Dietetic Association) exchange information.

*Jessie G. Wright, M.S., R.D., L.D.
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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 Orthopaedic Clinic, P.C., of physical therapists and trainers at Rehabilitation Services of Columbus, Inc. and Committed Fitness Systems, 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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