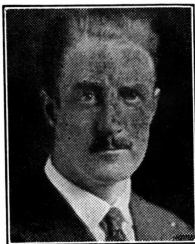


# SPECIFIC INJURIES IN ATHLETICS

By George T. Stafford

*Under the subject of "The Physical Director or Coach in the Field of the Physical Subnormal," Mr. Stafford, who is Assistant Professor of Orthopedics and Physical Diagnosis at the University of Illinois, has already contributed articles for the May, September, October, November, December, January and February Journals. Periodic Health Examinations will be discussed by Mr. Stafford in the April issue.—EDITOR'S NOTE.*



**T R E A T -**  
**M E N T.** Rest with the arm fixed in a position of abduction and slight external rotation, the weight of the limb being taken off

the shoulder joint. Many cases respond to the rest treatment of a bandage supporting the elbow and carried across the opposite shoulder. An auxillary pad will help in the necessary abduction. Rest and support comprising the major part of the treatment heat and very light massage may be given until pain subsides.

Exercises may then be given the arm with the patient supine; diathermy is indicated and finally active exercises. The abduction movements must be totally free from discomfort before the active exercises are started. The general health of the individual must be watched. If the case shows chronic constipation it will be well to bear in mind that any toxic or irritating substance which is thrown in the blood stream will have its effect on the existing weakness in some other part of the body.

Many cases do well with a shoulder spica or a figure eight bandage. The Scotch douche used in hydrotherapy is found helpful in creating a local reaction. This may be used on adjacent muscles which support the

part. In this way the tone of the entire shoulder is improved and a lessening of the strain and pressure on the tender bursae results.

## The Elbow Joint

Olecranon bursitis is found in basket ball cases where a man is suffering from an enlargement on the point of the elbow. Full extension of the arm causes tension on the bursae or fluid sac and pain results.

**Treatment.** The removal of the effusion is generally accomplished by pressure as from a pad and bandage. The part should be given adequate rest and further playing allowed only with the elbow well protected by a suitable elbow pad.

**Tennis Elbow.** This condition may be caused by an inflammation of the radiohumeral bursae, or by a strain or pulling apart of some of the fibres of the muscular insertion of the extensor muscles of the forearm which attach at the external condyle of the humerus. Pain is felt on lifting some object or when the fist is clenched. A slight swelling may be seen as well as a very small definite area of pain felt. Dr. Whitman quotes Sir Robert Jones' treatment as follows: "Direct pressure is made at the sensitive point by several thicknesses of adhesive plaster fixed in place by adhesive tape. A similar pad for compression is then placed upon the muscle below the joint. The first pad is designed to press

out the effused fluid and thus to permit direct contact of the separated tissues. The second is by pressure on the muscles to limit their activity. The same principle applies to similar injuries to other joints." This principle of limiting the muscular activity of affected parts is often seen in the average person applying a wrist strap for "some" sprain or strain in the wrist or forearm, or the laborer wearing a wide belt around the waist for a back injury. The restriction is to avoid the use of the injured part.

### The Wrist

**Sprain of the Wrist.** A large number of "frail" or weak wrists results from the careless diagnosing of sprained wrists where in many cases a dislocation or fracture of one of the carpal bones should have been the diagnosis. Jones and Lovett say that dislocation without fracture is not common in the wrist. Enough has been written to caution the coach or physical director from careless diagnosing of sprained wrists. The advice of an Orthopedic surgeon and the further assistance of the X-ray should precede the decision on the majority of cases.

Assuming that the treatment will be for real sprains the procedure is as follows: A gauze bandage may be applied about the metacarpus (bones between the fingers and the small bones of the wrist), the wrist and the lower part of the forearm. Adhesive may then be applied to act as a light splint. This prevents injury to the affected parts due to strain and at the same time allows enough functional movement necessary to nourish the injured part and hasten absorption of the effused material in and around the injury.

Further treatment: Heat followed by cold or massage and

diathermy to hasten repair of the damaged parts. Care should be exercised in the use of the wrist following a sprain. It is well to avoid heavy work for at least two weeks and then the wrist be protected from further strain by a suitable strapping which is worn **ONLY** while the work is going on. Due care must be given that the wrist is not allowed to become weak due to the continual wearing of the protection.

### The Back

Bruises of the soft parts of the back. These are the results of kicks or falling on or against unyielding surfaces.

**Treatment.** Hydrotherapy in the form of hot and cold water applications hasten the absorption of the effusion and restore tone to the part. A counter irritation such as electricity or iodine is sometimes found helpful. The criss-cross adhesive strapping which aims for artificial support of the injured erector spinae muscles is the logical procedure to follow the hot and cold applications.

**Sprains of the Back** are caused by some sudden forms of violence in the way of a twisting of the body in an unguarded moment.

**Symptoms.** Pain over the site of the sprain, often discoloration, limited movements and swelling.

**Treatment.** Complete rest until the acute stage has passed. For the athlete, the criss-cross adhesive strapping will suffice as rest for the part. The ordinary hot and cold applications may be used and if diathermy is convenient, a systematic procedure with deep heat, followed by massage will soon put the man back in the game.

### Sacro-Iliac Disturbances

**Sprains.** A true sprain of the sacro-iliac articulating parts generally comes from sudden falls

with the thigh abducted. The symptoms are local pain on pressure or motion. The strappings which start at the front of the hip bone on one side and circle to the body to the front of the opposite hip bone generally bring relief if proper rest is given and the part treated by ordinary sprain methods.

Dislocations of the sacro-iliac. The question immediately arises as to whether there is really a separation of the parts. The majority of doctors do not admit of a separation but rather speak of a relaxation of the pelvic articulations caused by a malposition of the sacrum. The symptoms are local discomfort at or around the articulations, pain along the sciatic nerve, generally induced by forward bending of the body with the knees straight or leg raising with the knee extended. The treatment is as follows: For temporary relief the adhesive strapping may be used to stabilize artificially the pelvic region at the back. Further treatment is to tone up the part with physiotherapy measures which have been outlined above. In cases where good response is not found from this treatment a special belt or corset may be used as a retentive apparatus to be used in connection with the other treatment.

### Testicle Injury

Owing to the numerous happenings in athletic sports, it is well to know the physiological treatment for this painful condition.

The cause is well known. The treatment consists first of all in relieving the pain first by elevation of the parts and hot applications. The hot applications will cause further congestion so cold must always follow the hot to relieve this congestion. A suspensory bandage should be worn

until the parts regain normal tone again.

### The Knee

Structure. The knee is a hinge joint allowing slight rotation outward of the tibia (shin bone) on the femur (thigh bone) as the leg is extended. With the knee bent, internal and external rotation is allowed as well as a slight forward and backward motion. A fibrous capsule almost completely surrounds the joint.

The joint is further supported by a number of ligaments, muscles and tendons, chief of which for this consideration, are the anterior crucial ligament, the posterior crucial ligament and the internal and external lateral ligaments. The anterior crucial ligament assists in preventing forward displacement of the tibia. It is attached to the upper front part of the tibia and partly to the lateral (outer) semilunar cartilage and passes upward and backward to the inside of the lateral condyle of the femur. The posterior crucial ligament is attached to the upper back part of the tibia and passes upward and forward to the inner side of the medial (inner) condyle of the femur. This ligament assists in preventing backward displacement of the tibia. The internal lateral ligament is attached to the internal condyle of the femur and runs down to the internal condyle of the tibia. The external lateral ligament is attached to the external condyle of the femur and runs down to the head of the fibula.

Between the bone of the thigh and the bones of the leg are the semilunar cartilages. These are arranged as buffers to prevent the tibia and femur being pressed together, but allow full movement in the normal joint without interference with the movement. When the knee is bent the two cartilages slide forward toward the center and when the joint is

extended they slide away from the center.

Injuries to Knee Joint: As the internal cartilage and the internal lateral ligament are the parts most affected, the discussion will be limited to conditions on the inner side of the knee. Internal lateral ligament. Under normal conditions this ligament supports the inner side of the joint but with the knee slightly bent and the foot turned out, a sudden weight thrown on the structure or a slipping outward of the foot, causes an inward rotation of the femur and a tearing of the short internal lateral ligament (usually at the tibia end of the insertion) and a slipping of the femur over the rear of the internal cartilage, which is attached to the internal lateral ligament. The common result is a "nipped cartilage" and often a sprain fracture where the ligament is torn from its attachment on the tibia. The least that

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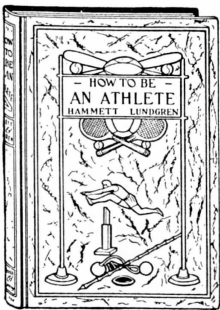
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**ROBT. W. EDGREN,** Los Angeles, Calif.: I wish I'd had that book many years ago when I was a boy evolving "styles" in hammer throwing and shot putting and a lot of other athletic feats without coaching and without much of an idea of the way these things are done by those who know how. The book is a useful book to any athletic boy, or any boy who isn't athletic and would like to be. I enjoyed it, although somewhat of a veteran in sports.

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may be expected is a sprained internal lateral ligament.

**Symptoms:** Pain at the inner side of the joint and especially when the foot is turned out, swelling and limitation of movement.

**Treatment:** A splint or cast should be used for immobilization for two or three weeks, a one-quarter inch lift on the inner border of the heel to throw the weight to the external ligaments and to relieve the strain on the internal lateral ligament. Weight bearing is allowed with the lift on the heel and a splint on the knee, only after a week. The patient should then be instructed to walk with the toes turned in, or pigeon toed. Following this the part should be toned and general treatment given which will develop normal function in the joint.

**Internal semilunar cartilage.** Due to the attachment of this cartilage to the internal lateral ligament, it is often involved in athletic injuries. If the action of the cartilages in flexion and extension of the knee joint is remembered, it is easy to see that with the knee slightly bent, the common injury is displacement of the cartilage inward. The wedge shaped disc margin is pulled into the joint and gives the common picture of "locked knee."

**Symptoms:** Generally an inability to extend the joint fully, pain and effusion.

**Treatment:** Absolute reduction. Unless the patient can actively extend his leg fully, the reduction is not complete. The usual reduction procedure is as follows: 1. The knee is fully flexed and rotated inward on the femur. 2. On the count of "three" the patient kicks (extends his leg straight) as the operator assists and gives slight adduction at the joint to allow as much space as possible for the cartilage to slip

out to its normal position. This is usually the doctor's work and should not be attempted by the coach, unless in an emergency.

Full fixation by a splint or cast should be given for at least two weeks and even for three weeks. This allows the injured tissues to unite and the cartilage to become attached again. After three weeks, the limb may be used with the lift on the inner border, toes should be turned in and a support should be used to prevent strain on the inner part of the knee. Following this, the procedure is simply to tone the part and to work for normal function of the joint. Attention should be given the parts above and below the knee as well as the knee itself. This applies especially to the thigh muscles.

**Synovitis or inflammation of the synovial membrane** which lines the joint: This is caused by violence which may be either a blow or a movement of the joint outside of the physiological limits. It often accompanies the knee injuries which have just been described.

**Symptoms:** Motion painful and limited due to irritation and further secretion of synovial fluids, floating patella or "clicking patella."

**Treatment:** Rest by immobilization, and massage to relieve the effusion. Bandaging over cotton will often prevent effusion or exudation and should be applied as soon after the injury as possible. Dr. Moorehead's "rail fence" dressing (page 168 "Traumatic Surgery") is useful to prevent further irritation. Complete immobilization, for a period of any length, will cause muscular atrophy. Massage is, therefore, necessary to restore tone to the part. Body tone must be maintained but exercises should not call for a movement of the joint for three weeks. After this

period carefully administered non-weight bearing exercises should be given. Care must be exercised to protect the part from movement, which the patient knows from experience will cause discomfort.

### The Ankle

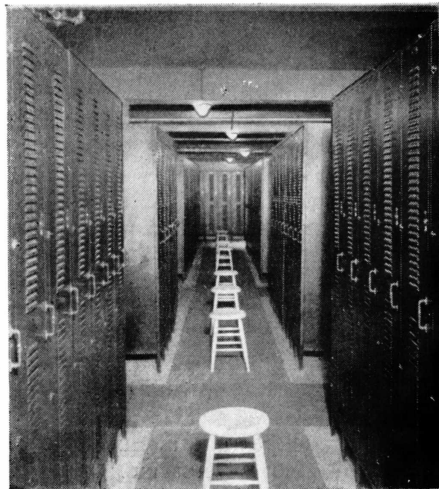
"Sprained ankle." Owing to the strength of the lateral ligaments and the numerous bony parts which may become involved in the injury, the term "sprain" should not be used without good reason. A sprained ankle, involving the ligaments **ONLY**, may properly be termed a "sprain."

A sprain is generally caused by a sudden movement of the foot beyond physiological limits. If the capsule is involved, a swelling generally results at once. Pain is felt locally and movement which involves a stretching of the injured part also produces pain. Discoloration is due to the internal bleeding.

It is well in **ALL** ankle cases to determine by X-ray whether or not a sprain, fracture or dislocation is present. Displacement, due to fracture of the tibia, is not always present in many so-called "sprained ankles." Thus it is always best in every case to play safe and have the X-ray taken as soon as possible.

**Treatment of a Sprained Ankle:** Rest is always called for, avoidance of weight bearing, and elevation of the limb to avoid congestion around the injured part. Ice packs, for the first day or until the acute stage has passed, will help in eliminating much of the swelling which generally is present. At the end of the first day, a one-inch thickness of absorbent cotton bandaged by an ankle bandage (the edge of the cotton should protrude at least one inch beyond the bandage) will give sufficient immobilization and

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pressure to allow nature to repair the injured part, prevent further damage and keep the effusion out of the joint. At the end of two days hot and cold applications, and other measures to promote circulation, should be used. Massage may be used to hasten absorption of effusion. Adhesive strapping may be used from this time through a period of three weeks, at which time the usual athletic sprain should be well. It is wise to note any foot difficulties, such as pronation or flat-foot, and make suitable correction in the shoes to allow comfortable and correct mechanical action of the feet in locomotion. The usual figure eight bandage should be used in all games for protection against ankle injuries or foot strain. These should not be worn when the patient is not engaged in athletics or exercise.

Another type of treatment often used is hot and cold applications to the injured part and careful strapping "Gibney or basket-weave," by means of this method the tape takes the place of the injured ligaments, thus allowing sufficient rest and repair. The foot may then be used immediately. This treatment cannot be recommended as a general one, as it requires a rugged development to bring about perfect recovery.

"Sprain fractures." Owing to the strength of the ligaments, a severe twist of the ankle often tears a small flake of the bony surface with it. Pain, swelling in the joint, incomplete function, pain and tenderness over the torn parts, are symptoms of this condition.

Treatment: First reduce the effusion and then treat as a fracture. A plaster cast is the safest for two weeks to allow the bony flake to grow back again. At the end of two weeks, tonic treatment and massage may be given, gradually allowing active use of the

part. The common crepe ankle bandage may be used for two weeks longer and at the end of this period (four weeks in all) the part should be normal again. If there is a slight disability, this should clear up in a week, providing tonic treatment is given and the adhesions have been broken.

Myositis Ossificans, or a hardening of the connective tissue of the muscle, resembling bone in its structure. This condition is discussed because of the common error which is made in mistaking this condition for "Charley Horse."

Lovett and Jones' "Orthopedic Surgery" speaks of this condition as having "its origin in an escape of bone elements induced by the original trauma (injury) and is most often the result of considerable tearing of muscular attachment from bone, accompanied by a varying amount of hemorrhage. With the torn muscular attachment, fragments of periosteum and osteogenetic tissue are pulled away, and these apparently are originators of interfibrillary and intermuscular septa."

Massage, in place of assisting in the removal of the clot, only increases the blood supply to the clot and augments the further growth and size of the mass. Therefore, while massage may be useful in "Charley Horse," it is NOT to be used in myositis ossificans.

Symptoms: Differing from "Charley Horse" myositis ossificans gives little pain at first, simply a slight inability to function fully in the particular muscles involved (usually the front of the thigh), the limb may be heavy and while the part becomes harder, the movement of the limb is more difficult and ties up very easily.

Diagnosis: X-ray is necessary

(Continued on page 39)

to determine the condition of the muscle and it is urged that, in School to determine the State Title.

Most of the Intercollegiate and Interscholastic Hockey is at present played in outdoor rinks with natural ice. Michigan, the Michigan School of Mines, Hibbing Junior College and Eveleth Junior College play in indoor rinks with natural ice. Marquette plays at the Milwaukee Ice Arena, with artificial ice, the rink which was the home of the Milwaukee Amateur Hockey Team last year. Minnesota last year played all home games at the Hippodrome Ice Rink in St. Paul on what is said to be the largest indoor sheet of ice in existence. This year, however, under the direction of Coach Iverson, Minnesota built an extensive Winter Sports layout, consisting of one out-door Varsity rink and three outdoor intramural rinks and in addition, a large area for speed and figure skating.

### Specific Injuries in Athletics

(Continued from page 24)

ALL doubtful cases, this be used. Early detection is important as the treatment is not similar to "Charley Horse." Rest in the early stage of myositis ossificans is the best treatment that can be given. When the mass has really formed an operation is often necessary, but then, care must be exercised in watching the development of the mass, by X-ray pictures taken at monthly intervals or more often. An operation performed before the mass has formed fully often results in a recurrence. Needless to say this is handled in conjunction with the physician and he will determine from the X-ray pictures the proper time to operate or he may find it unnecessary to operate.

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