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Major S. E. Bilik

Phil Hudson, assistant trainer at the United States Navy Pre-Flight School, Athens, Georgia, checking a cadet's ankle.
The Anatomy of the Shoulder

By W. W. Tuttle, Ph.D.
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THE region of the shoulder is of special interest from the mechanical point of view because provisions are made for extensive and varied movements. The joints and ligaments of the shoulder are arranged to withstand considerable stress and strain. But since the bony levers are relatively long and the shoulder projects sideward with little muscular protection, unusual stresses often cause injury.

The shoulder girdle consists of two clavicles (collar bones) and two scapulae (the shoulder blades). One end of the clavicle is securely fastened to the sternum, and the other end to the acromion process of the scapula. The posterior part of the girdle is attached to the mid-line of the back only by muscles.

The acromio-clavicular joint, between the clavicle and the acromion process of the scapula, permit a small amount of movement in every direction. The articular capsule is strengthened by the acromio-clavicular ligaments. The joint is further secured by the trapezoid and conoid ligaments which are situated some distance from the joint and extend obliquely downward from the under surface of the clavicle to the base and upper surface of the coracoid process.

The scapula literally hangs from the clavicle by the conoid and trapezoid ligaments. A sharp blow downward on the top of the shoulder puts stress on these ligaments as well as on the capsule of the acromio-clavicular joint and the intraclavicular ligament of the sternal joint.

Acromio-clavicular dislocation is perhaps the most common type of shoulder injury especially among those engaging in contact sports, not only because of the flat articular surfaces but also since there is nothing to retain the bones in position except ligaments.

Treatment of Acromioclavicular (Shoulder) Separation

By Eddie Wojcik, Civilian Trainer
U. S. Navy Pre-Flight School, Athens, Georgia
Formerly Head Trainer at Louisiana Tech.
The proper diagnosis and treatment of shoulder injuries is therefore, highly important in a training center like ours, where improper care might bring inexcusable delays to Uncle Sam's fighting plans.

Since space is necessarily limited, I shall confine this discussion to the diagnosis and treatment of only one of the numerous types of injuries to which the shoulder is subject, namely the acromioclavicular separation. Except for the fracture, no shoulder injury requires more painstaking treatment than this, if complete recovery is to be assured.

Shoulder separation, as the acromioclavicular injury is commonly called, may result from falling on the elbow or extended arm with sufficient force to cause a separation in the acromion process. Another common name for this type of injury is football shoulder, because it is so often caused by blocking. The chief reason for the frequency of this injury in football is faulty shoulder pads which give insufficient protection to the shoulder points. The cantilever type of pad is a valuable safeguard against this painful injury. Linemen in football should never go into a game wearing the lighter pads designed for backfield men.

The less serious cases show a bump or lump on top of the shoulder at the acromion process while the more severe give the shoulder a drooping appearance which is often mistaken for a dislocation.

Competent diagnosis is, of course, important since fracture is always a possibility. X-ray is, in fact, the only sure way of detecting particles of chipped bone which may accompany a shoulder separation and give the athlete considerable trouble in later years. More serious shoulder fractures are usually easy to diagnose from the deformity and the pain which they cause. The athlete's tendency in such cases is to push his shoulders back, as far as possible, to ease the pain. Dislocations are equally easy to detect because of the severe pain and the pronounced deformity.

If no fracture or dislocation is present, the shoulder injury may be diagnosed by a function test consisting of flexion, extension and circumduction of the upper arm. Strains and sprains are accompanied by localized tenderness and limited function. Contusions and torn muscles are detected by means of passive function with palpation, the injured muscle being found by pressure.

Acromioclavicular separation is the diagnosis when the athlete is unable to raise one of the Navy's mighty little men is civilian trainer Eddie Wojcicki who helps keep our future "Navymen" in fighting trim. A physical education graduate of the University of Warsaw in Poland, Eddie got a B.S. degree in Biology at Louisiana Tech, Ruston, Louisiana, where he served for eight years as head trainer, track and boxing coach until the Navy claimed him. Earlier he had been head trainer at Howard College, Birmingham, Alabama.
his arm to shoulder level or to slide his hand across the chest to the opposite shoulder.

The first step in the treatment of shoulder separation is reduction of the injury. To accomplish this the athlete, seated in a chair, flexes his arm and places his hand high on the chest near the opposite shoulder. The trainer, standing behind him, grasps the elbow in both hands and pulls upward, as seen in Illustration 1, until the shoulder snaps audibly into position. Next the injury is treated with cold application for at least two hours. Following this, the shoulder is taped in the manner shown, however accompanying illustrations. To prevent irritation and to give greater adhesive quality, the skin is first shaved clean and painted liberally with tincture of benzoin compound before the taping is applied.

As shown in Illustration 2, the athlete’s elbow is pressed up with the trainer’s knee to maintain reduction while the taping is being applied. Two-inch tape is used throughout.

First, an anchor strip is applied once around the arm just below the bulge of the bicep. A 2 by 4-inch strip of quarter-inch felt is placed at the shoulder tip directly over the acromion process and is secured by a strip of adhesive which is applied with considerable upward pull and terminates on the lower point of the scapula.

Illustration 3 shows the position of strips 2, 3 and 4, all applied with a strong lift. Strip 2 terminates at the base of the neck, strip 3 at a point between the spine and lower edge of the scapula, strip 4 at the acromion and sternum. Next a strip of gauze is placed over the nipple for protection and held there by a light application of benzoin.

In Illustration 4, strips 5 and 6 are carried up to the base of the neck with the same strong upward pull. The arm has now been securely anchored in position and the next step is to apply strips 7, 8, and 9 which will keep the shoulder back where it belongs. Starting at the gauze over the nipple, the three strips are successively applied with a strong pull over the shoulder to terminate at the lower edge of the scapula. Strip 10 and strip 11 (not shown) are placed horizontally over the rear and front termini of 7, 8 and 9. Strip 12 which terminates at the center of the back is applied as shown, so that it limits the function of the shoulder joint and upper arm.

In Illustration 5, anchor strip 13 is applied and the lower arm is then placed in a comfortable sling so that the shoulder may be immobilized. This bandage and sling should be kept on for three days, after which heat treatments and massage are begun. Reference to the article in this series by Bill Dick appeared in the March issue.

In severe cases it is well to use the above taping as described above after each visit to the doctor until enough to permit limited movements. The hot packs are applied daily as shown in Illustrations 6, 7, and 8. A generous application of one of the standard brands of counter-irritants is applied to the arm and composted with cotton as shown in Illustration 6. Cotton is also placed under the armpit. A roll of elastic bandage is then tied around the upper arm, care being taken that the wrapping is loose enough to permit circulation in the arm. Bandage is then carried over the posterior of the shoulder, across the back, over the good arm, across the chest (Illustration 7), over and under the injured arm, and back up over the shoulder point to circle the body a second time. The bandage is then anchored with a strip of adhesive. In Illustration 8, the complete bandage is shown. The two crossing strips of adhesive are used to keep it firm in place. This pack is changed daily after each heat and massage treatment, until the shoulder is well.

The War and Athletics

By S. E. Bilik
Major Army Medical Corps

FOR many years Dr. Bilik served as trainer of the athletes team of the University of Illinois. Before his graduation from the New York University school of medicine, he served as hospital sergeant in the medical corps of the United States Army and later as athletic director of Madison Square Garden gymnasium. Dr. Bilik has in recent years engaged in private practice in New York City. Now serving in the medical corps of the army, stationed in a hospital in the South, he is specializing in physical therapy.

Editor’s note.

The orthopedic clinic of a large army camp hospital...shoulders, elbows, hands, backs, knees, ankles...bones, joints, muscles, ligaments, tendons...Injuries...Strains. A college football team on a vast scale...the hospital serves some forty thousand souls.

The athletic coach selects his material from boys of near physical perfection. The army, however, must take men of eighteen to forty-five many of whom have led relatively inactive lives, and proceed to whip them into condition, rivaling that of the best trained football teams. You may with justifiable scepticism question whether this goal is achieved. You would be inclined to doubt it, if all of your time were spent in hospital clinics—the perspective here is obviously distorted. A jaunt to the drill fields quickly drives home the fact that for every soldier who “can’t take it” countless hundreds have been metamorphosed into tough and strong fighters just aching to get at the Nazis and the Japs.

We, in the training field, who have always believed that athletes are born and not made, have ample reason to change our viewpoint. Once developed physically to the point where he possesses abundant strength and endurance, even the apparently hopeless lunatic recruit begins to display heretofore dormant and unsuspected agility, co-ordination, and aggressiveness—the three vital essentials of a good athlete—and of a good soldier. The present carefully planned military training routine combined with an equally intensive physical conditioning program in our colleges and schools, should build vast numbers of excellent athletes. We are going through a period of rejuvenation and reactivation of our man power. Ultimately, when millions of splendidly conditioned men are healthy, and the deep joy of athletic activity, pour back into civil life, we may anticipate a nation gone utterly and over competitive sports.

The basic principles that govern scientific training and conditioning in schools have been made use of in the service. There is the same careful planning, the same intelligently graduated period of mental and physical training which is designed to prepare every recruit in his body to the bodily test and exactions and grueling demands of modern war. Inexperience or indiscipline, or the like, are systematically corrected before the recruit is permitted to advance to the next rigorous training routine. In the army, even as in athletics, we may find many splendid specimens of humanity—men of brittle clay—poor feet. Every soldier may lead to the loss of essential combat material. Again you may ponder on Frederick Eastwood’s insistence on the necessity of from four to six weeks of careful and skilful basic training in order to maintain the frequency of injuries. Without five weeks of basic training, we would have terrific loss of potential combat material. Close observation of modern sport and military conditioning trains convince one that the strenuous method used in sport conditioning football teams—and perhaps in some football teams. Incidentally, this is the place where physical education can serve the people the best. Physical education schools can be a real aid in the training of the men who will be facing the battlefields next year.

The Athlete's Journal

for April, 1943
The college trainer strives to keep his injured men in shape by means of special exercises. We are using similar methods in reconditioning our patients. Every effort is made to start the latter on exercises, graded in accord with the patient’s general physical condition and his specific disability.

Athlete’s heart, the terrifying bugaboo of those who would discourage competitive athletics, should certainly be a common occurrence in the military services where millions of men taken from soft lives of relative inactivity undergo the most strenuous training such as running difficult obstacle courses, hiking many miles under heavy pack, double timing, etc. The heart specialist of the station hospital informs me that he has still to see a single case of anything approximating heart strain or “athlete’s heart.” Is it not about time that this scarecrow be buried for good and all?

While the general training program aims at the development of strength, ruggedness, durability, co-ordination, courage, aggressiveness, team work, the will to win, the readiness to “carry on,” when there is nothing in you, except the will which says to you “hold on,” the government lays a great deal of stress on the promotion of athletic activities for recreation and morale. It matters not how hard a soldier drills and trains, when the day is done, he will spontaneously seek to participate in his favorite sport or will hurry to watch a football, basketball, or baseball game by the more expert of his buddies. “It was somewhat amusing,” writes a prominent columnist, “that the youngsters after all he has been through in the army, sent me, not a picture of himself posing with a big gun, but a photo of himself facing out a three-base hit. It was truly a typical American boy stunt.”

Only men who have never participated in our popular team sports, fail to appreciate the depth of the incurable American malady, we may call “athletics.” Thus intermittently some publicity seeker will take a roundhouse swing at athletics, only to be rewarded with justifiable ridicule. Those who are concerned with the development, and the preservation, of fighting morale have a profound belief in the value of our national competitive games. The love of our sports; the hero worship which we shower on our McMitchells, Sinkwicks, Rices; the bleacher quarterbacking, wise-cracking and razzing—all this is part of the American Cavalcade.

In times of stress, athletics constitute recreation far superior, in promoting a combative spirit, to the radio, the movies, flowery speeches or clever editorials. Athletics tend to develop a fighting spirit that does not recognize failure or defeat. When the newspapers trumpet news of our Tunisian retreat, our reaction is, “We’ll get them yet!” Incidentally, games are mighty good physical, mental and spiritual exercise for the spectators, too. The 18,000 men watching a track meet or a baseball game at the Madison Square Garden are going through a most vigorous workout which will leave them in a profuse sweat, gasping for breath, and badly in need of a rubdown. Physiologically, we can prove that the muscular hypertonicity brought on by the mental stimulus of an exciting athletic contest is a form of strenuous exercise, perhaps as strenuous as the physical condition of the spectators justifies.

A good many college trainers are now in the services and many more are eager to get in, and put their shoulder to the wheel. Many of you have been writing to me asking my help to assist you in placing yourself, where your specialized training will do the most good. To the older men I say “sit tight!” You can do a world of good right where you are, helping to condition the boys, who are approaching the enrollment age, and those boys assigned to your school by the government for specialized training. lend a hand with the general physical education program. Be a trainer to all the boys.

**Announcing Interesting Articles for the May Issue of the Trainers Journal**

**HAND AND WRIST INJURIES**

PHIL HUDSON
United States Navy Pre-Flight School
Athens, Georgia

**TREATMENT OF BASEBALL INJURIES**

Lieutenant HOWARD HAAK
United States Navy Pre-Flight School
Del Monte, California

**NUTRITION AND ATHLETICS**

FRANK J. WIECHEC
Athletic Trainer, Temple University

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