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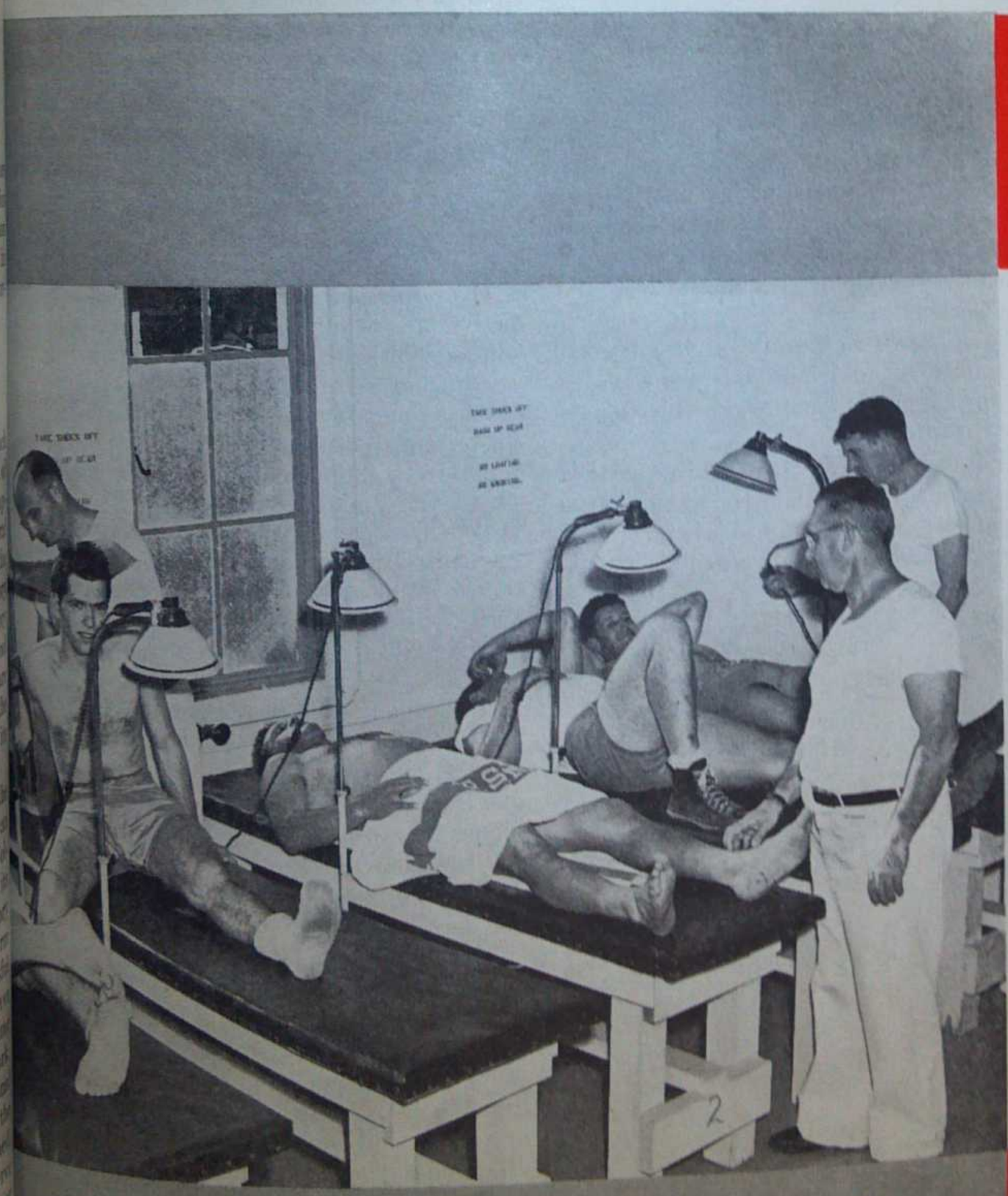

Official Publication
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Trainers Association

Treatment of Ankle Sprains
Fitz Lutz

Physiotherapy Speeds Repair
O. W. "Bill" Dayton

Ask Me Another
Lil Dimmitt

Head Trainer, Billy Fallon (center) Lieutenant (j. g.) Debeley (left) and Bob Officer (right), assistant trainers, keep close tab on the cadets at St. Mary's Pre-Flight School.

Treatment of Ankle Sprains

By Fitz Lutz

Civilian Trainer, United States Navy Pre-Flight School, Athens, Georgia

IN the opening article of this series, Hank Crisp described the ankle wrap which has been used so effectively as a preventive during the rigorous physical conditioning of aviation cadets here at the Navy pre-flight school at Athens, Georgia.

The occurrence of sprains, shin-splints or arch trouble has been so rare here among wearers of the wrap, that it would be impossible to overestimate its value in a program such as ours. Because each of our future Navy pilots is scheduled to emerge a few months hence as a perfectly conditioned instrument of war, any preventable injuries which might delay fulfillment of this mission are morally chargeable against the trainers.

Despite utmost vigilance, however, ankle sprains do occur. When they do, it is important that treatment be given at the earliest possible moment; otherwise its effectiveness will be materially lessened and the suffering unnecessarily prolonged. The accompanying illustrations show the method of treatment in use by our staff of trainers. These do not, however, cover the application of heat therapy—a subject which is discussed at length by our Athens Pre-Flight colleague, Bill Dayton, in another article of this issue.

In Illustration 1, the circle shows the location where a sprain most frequently occurs, owing to the ankle's greater tendency to twist to the outside.

Illustration 2. After the hair has been shaved from the lower leg, two-inch adhesive is applied tightly, extending from the base of the toes counterclockwise, upward around the arch and ankle joint. Pressure is lessened as wrapping goes upward. The reason for applying greater pressure at the toes is to keep this area clear of the hemorrhage and swelling. This is particularly desired because the minute size of the toe capillaries makes swollen toes rather difficult to treat. The object, therefore, is to force the congestion upward toward the body where it can be carried off more quickly by the larger blood vessels. The wrapping as seen in Illustration 2 is then completed with another half turn, being secured to the anchor strip at the Achilles tendon.

Illustration 3. Two strips (1 and 2) are successively applied, extending from the top of the anchor strip at the inside of the ankle, under the heel and back up to the anchor strip on the outside. These two "stirrup" strips are not drawn very tightly. Strip 3 is then brought from the base of the great toe along the longitudinal arch, parallel to the axis of the foot, around the heel, and back along the outside of the foot, ending behind the small toe. Strips 4, 5 and 6 are then successively added in parallel layers that build upward toward the ankle. Strip 7 is spiraled upward as shown in the illustration, so that its upper edge, after passing around the Achilles tendon, will coincide with the top of strips 1 and 2 on the outside of the foot. The taping is then complete.

WHEN Fitz Lutz signed up with the Navy as a member of the civilian trainer staff at the pre-flight school, Athens, Georgia, it did not require much traveling to get there. As head trainer for the University of Georgia since 1938, Fitz had been a popular fixture on the Georgia campus long before Navy pre-flight arrived last spring to take over a number of the university buildings and athletic fields for aviation cadet training. Round-faced, jovial, and intensely devoted to his job, Lutz is as much a favorite with the Navy's fledglings as he was in the past with Frankie Sinkwich & Co. Fitz came to Athens in 1938 after three years as assistant trainer at Louisiana State.

Illustration 4. A prop, as shown in Illustration 5, is next placed under the leg to keep the ankle elevated at least eight inches. Ice bags filled with tightly packed crushed ice are then applied as shown in Illustration 4. Throat bags like these give the most satisfactory results, because they are flexible and tie easily into position. The ice is kept on the ankle from forty-five to ninety minutes, but must be removed briefly at fifteen-minute intervals to prevent frostbite.

For best results the ice application should be made within fifteen minutes after the ankle has been sprained. It may, however, still be beneficially used as late as ninety minutes afterward. If no ice has been applied by that time, it will probably be best to omit the ice treatment altogether, because the toes are probably swollen by that time, and the contracting effect of the ice on the vessels would force the swelling into the toes instead of localizing it out.

After the ice bags are removed, a pad of sponge rubber is anchored under the heel with adhesive (Illustration 5). This elevates the heel and permits the patient to walk on it with his foot in a normal position, with weight on the toes. The patient then goes to the dispensary for X-ray. If there has been no fracture, he returns to the trainer for further treatment after twenty-four hours. The various types of heat treatments used here are covered in an accompanying article in this issue. The taping is removed when the four-day series of heat treatments begins.

After each day's treatment a new bandage is applied as shown in the following illustrations:

The adhesive and the heat treatment having combined to make the skin highly sensitive, a two-inch gauze bandage is wrapped counterclockwise around the instep and ankle joint and anchored with adhesive (Illustration 6).

Over the gauze wrapping, two-inch adhesive tape is applied in basketweave fashion as shown in Illustration 7. Strip 1 is the anchor strip which goes once around the leg about four or five inches above the ankle joint. Strip 2, the first stirrup, extends from the anchor strip at the inside of the leg, under the heel, and is then pulled upward tightly to the outside and secured to the anchor strip. Strip 3 starts on the inside at the top of the longitudinal arch, is brought around the heel, parallel to the axis of the foot, and terminates at the front. Strip 4 is then applied in the same fashion as 2, overlapping the latter and about one inch to the front. Strip 5 is then applied in the same manner as 4, overlapping the latter and about one inch higher toward the ankle joint. Strip 6, the third stirrup, is applied like strips 2 and 4, overlapping 4 by about one inch and terminating at its own point of origin.

To complete the basket weave, strip 7 is then applied in the same manner as 3 and 5, one inch higher than the latter (Illustration 8). Next, beginning with strip 8, the taping is applied in figure-8 fashion. Starting from the front of the ankle bone at the outside and swinging to the inside and under the longitudinal arch to the outside, it is carried upward over the instep as shown here. Next it will cross at

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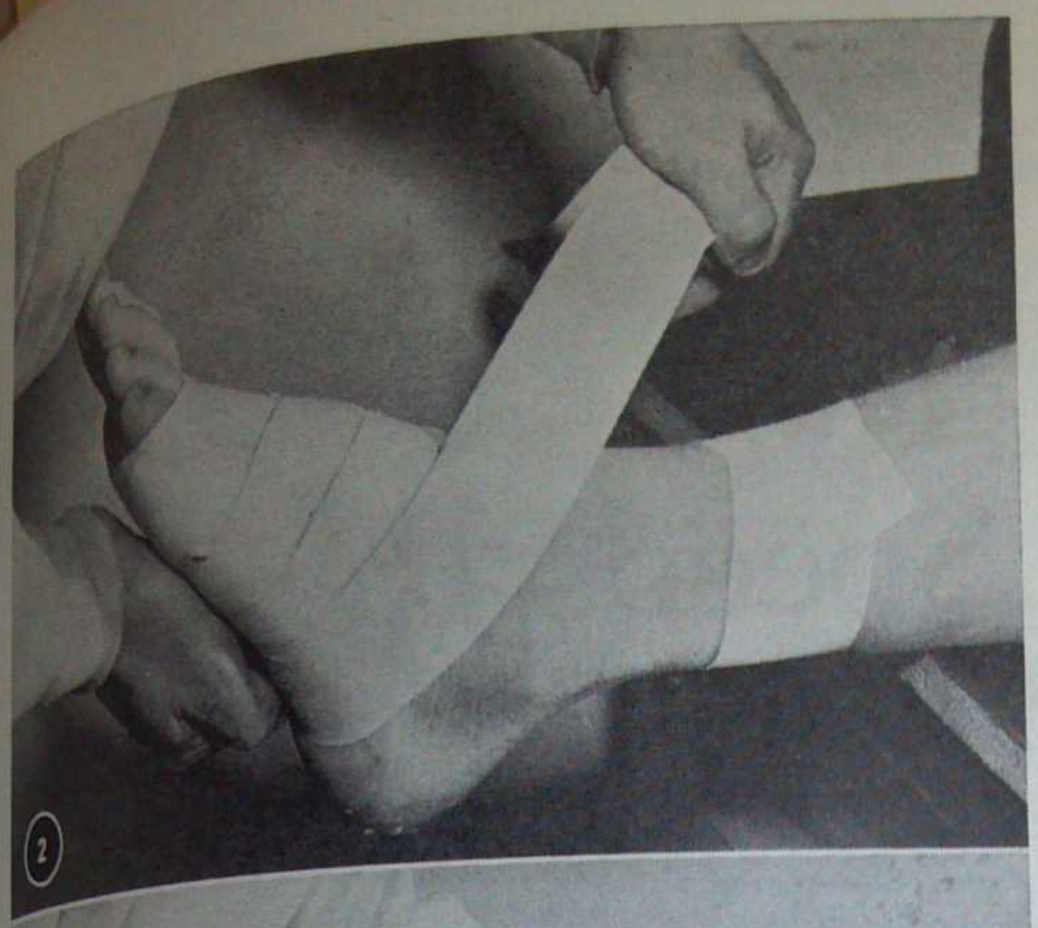

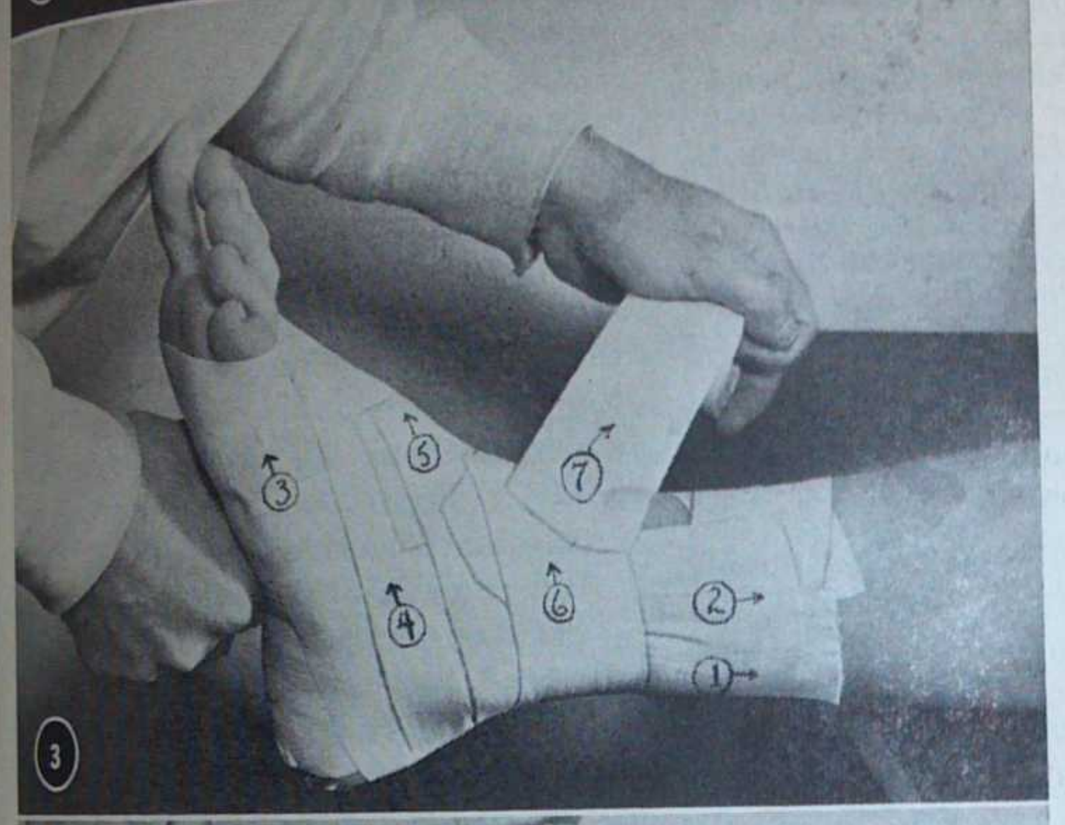

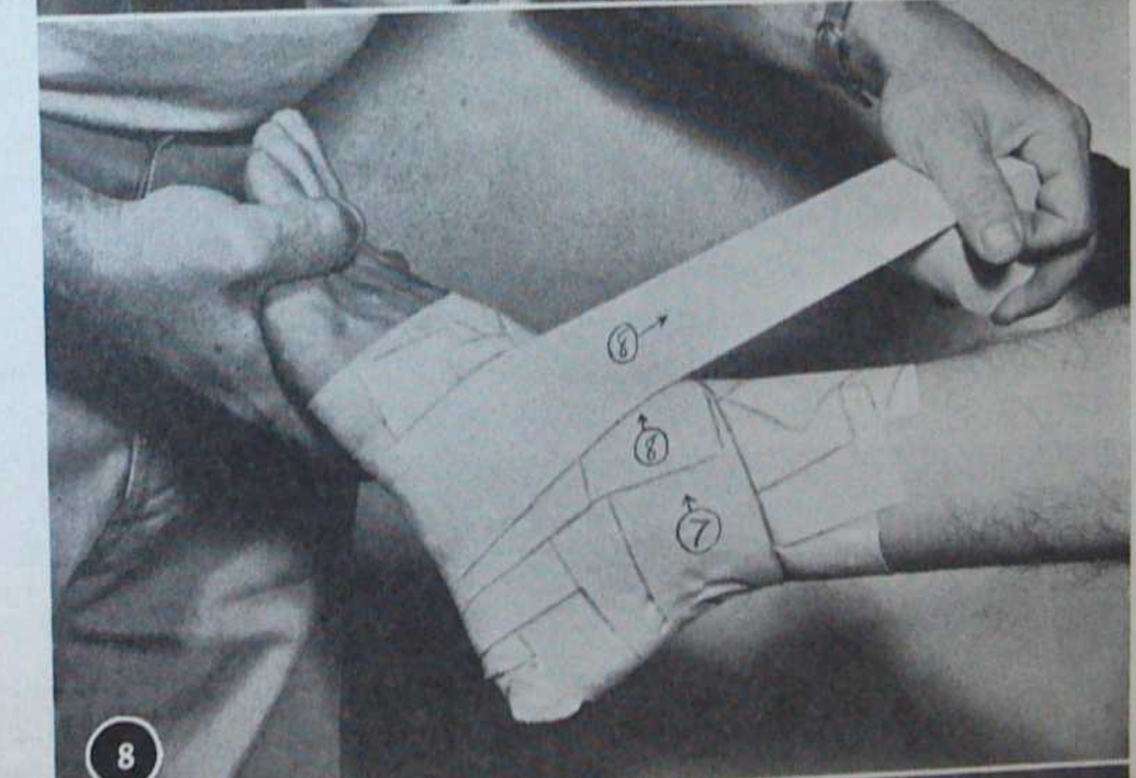

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the point of extension and flexion of the foot, continuing to the inside, around the Achilles tendon and across the center of the outside ankle bone.

Illustration 9. The same strip of tape (8) is then continued in another figure-8 movement, taking the same path it followed in the first movement. Thus, as shown in this illustration, 8C lies directly over 8A; and 8D lies directly over 8B. Then, over the terminal point 8E, strip 9 is wound once around. Another short strip, 10, completes the wrapping as shown.

This bandage is changed once a day, being continued long after the heat treatments have ceased and the cadet has returned to competition. The foundation gauze should always be applied first. The use of this taping, though considerably more of a nuisance to apply, is recommended in preference to the common ankle wrap (see article in the February issue) for the remainder of the season, or until the ankle is completely normal.

Physiotherapy Speeds Repair

By O. W. "Bill" Dayton

Civilian Trainer, United States Navy Pre-Flight School, Athens, Georgia

ONE of the few graduate physiotherapists in the training field, Bill Dayton came to the Navy pre-flight program from the post of head trainer at the University of Miami, Coral Gables, Florida. Although only twenty-eight, he holds sheepskins from the Eastern School of Physiotherapy and the Swedish Institute of Physiotherapy, New York. At Miami, he also made a special study of X-ray.

IN the swift prosecution of this global war, two factors of top importance to our fighting forces are time and condition. Time is of the essence in producing planes, guns, tanks, ships, in delivering supplies, in striking lightning blows through land, sea and air. Condition—the physical condition of men and machines—is what makes our time schedules possible. Without it, production would lag, supply lines would falter, troops would be ineffective.

Conversely, the precious element of time is a major consideration in all problems which involve the maintenance of condition. War's urgency calls for utmost speed in the repair of vital units—whether they be machines or men.

Among our fighting men, and among those who are being trained to join them on tomorrow's battlefronts, injuries are of course inevitable. But the most frequent injuries are often those which might as easily be encountered on the football field or in the gymnasium, the type which can put a man on the sidelines at a critical time without necessarily doing him permanent damage.

Covering the skin with a towel is an important precaution when the infra-red lamp is used. Mild heat for twenty minutes with the lamp about twenty-four inches away is preferable to intense heat for a short period.

The last war taught us many valuable lessons in the repair of such injuries, developed many new methods which hastened the processes of Nature. Physiotherapy had its meager beginnings in that war. Today physiotherapy is a full-grown science, doing a remarkable job in getting men off the injured list on time.

By definition, physiotherapy is the treatment of physical disorders with heat, light, electricity, massage and water. In our Navy base hospitals it is widely used in its various forms—thermotherapy (heat), actinotherapy (light) hydrotherapy (water), and electrotherapy—to rehabilitate men quickly, to heal injured tissues, to re-educate muscles.

Here at the Athens Pre-Flight School where twenty-four hundred future Navy fliers are engaged in a strenuous conditioning program, we find it equally useful in the treatment of athletic injuries.

Gone forever is the old saying "Once a sprain, always a sprain." No longer need a man carry the effects of a badly sprained ankle or knee for the rest of his life. Proper use of physiotherapy is the modern answer to all that. Not so long ago the treatment for a sprained ankle was to prop it on a pillow for about ten days, after which the patient learned to walk all over again, with crutches. Physiotherapy has today's athlete or fighting man back on his feet in three days.

To a man injured in training or in athletics, his best friend is usually heat, if properly applied at the right time. A common and often harmful error, however, is the application of heat too early. A sprained ankle, for instance, should first be strapped, elevated and treated with ice, as discussed elsewhere in this issue by Fitz Lutz. This arrests the spread of congestion which too early use of heat would only aggravate.

Since the sprain takes about twenty-four hours to have full effect, the injured joint (ankle or otherwise) should be elevated and rested as much as possible from thirty-six to forty-eight hours. The taping is then removed before the heat is applied. Removal of the taping is important except where diathermy of the short wave type is used. Otherwise, a chemical reaction will cause skin tenderness.

Where short-wave diathermy, preferable in deep-seated sprains is not available, the infra-red heat lamp provides an excellent substitute. The common practice here among the members of our trainer staff is to apply the infra-red heat for twenty minutes, keeping the sprained joint elevated and well covered with a towel. Elevation prevents further swelling; the towel prevents burning of the skin. Intense heat has a tendency to constrict the blood vessels and may even do them permanent damage. Therefore, mild heat for about twenty minutes, with the lamp at a dis-

Where moist heat is indicated, the churning waters of the whirlpool bath know no superior. Ten minutes at 110 degrees Fahrenheit are believed, in most cases, to be equal to a whole day of massage.

tance of two feet, is preferable. Absorption of the hemorrhage will take place far more satisfactorily under these conditions.

Where short-wave diathermy is used to achieve greater penetration, the same caution should be observed against too intense heat. Otherwise, the patient will experience aching and discomfort. Although some physiotherapists regard discomfort as a normal by-product of diathermy, I am firmly of the belief that its avoidance will bring far more desirable results. In the use of short-wave diathermy, it is also important that sufficient padding be provided between the electrodes and the skin. The same care should also be exercised with the induction cable method.

Although some of the newer developments in the science of physiotherapy have superseded it, the use of massage still has a definite place in the treatment of athletic injuries. Light massage—stroking or kneading—is most effective directly following the infra-red heat treatment. In joint injuries, an easy stroking motion above and below the injury for about five minutes will help prevent the atrophy of muscles from disuse. More vigorous forms of massage, such as tapotement (hacking, etc.) should, in my opinion, be reserved for the rub-down table and never be used in the treatment of injuries.

In mild sprains, heat and massage treatments may be found unnecessary, proper strapping and exercise being sufficient to effect a cure. In more severe cases, however, the daily use of heat and massage is recommended as long as inflammation persists.

After tenderness has been sufficiently reduced, it is well to abandon the lamp or diathermy in favor of the whirlpool bath. This will obviate the weakening effect which might otherwise come from overtreatment with heat. The whirlpool has the advantage of allowing the sprained joint to be exercised while immersed. Ten minutes a day of the whirlpool treatment at 110 degrees Fahrenheit will bring quick results.

Just as we must guard against too early use of the infra-red lamp, so also must we avoid using the whirlpool before such treatment is indicated. If, for example, we were to use the whirlpool instead of the lamp on a newly sprained ankle where a hemorrhage condition still existed, we could expect to see it swell like a balloon. With the foot hanging in the water, the force of gravity and the greatly stimulated arterial circulation would cause an accumulation of blood which the impaired venous circulation could not accommodate.

As already pointed out, the physiotherapist treats all injuries to joints along the same general lines. Injuries to muscles and tissues call for a somewhat different procedure. The pulled muscle is often confused with the Charley horse, though they are actually quite different. Usually caused by a quick start or other abrupt muscular

In shoulder injuries, the hot needle shower is especially valuable. The injured shoulder may be freely exercised while receiving the water's massaging effect.

extension, the pulled muscle is commonly attended by internal bleeding which results from the severance of small muscle fibres. The Charley horse, on the other hand, is a maceration of the tissues against the bone from an outside blow.

The pulled muscle should first be treated with cold packs, then rested from twenty-four to forty-eight hours, until the injury has reached its peak development. The moist heat of the whirlpool will then prove most effective. With this the important factors are rest and support with elastic bandage rather than adhesive. To insure against recurrence of the injury, it is essential that the patient be kept under treatment and the muscle firmly supported even after all visual effects have vanished.

Treatment of the Charley horse is a different problem. Cold packs are used at the outset for about twenty to thirty minutes. Then, after a rest of twenty-four to forty-eight hours, we apply infra-red heat for twenty minutes, followed by five minutes of light massage. Next a hot pack of one of the commonly known brands of counter-irritants is applied. This is covered with a layer of cotton and wrapped with elastic bandage until the next day's treatment. When most of the tenderness has gone, we discontinue the infra-red treatments and use the whirlpool. Caution is urged against sending the athlete back into action too soon, or without proper padding and support.

In all injuries where moist heat is indicated the whirlpool, when used at the proper time, knows no superior. Its value in the treatment of sore muscles, contusions, bone bruises, or common arch ailments resulting from flimsy gym shoes, is so great that twenty minutes immersion in its churning waters is believed equal to a whole day of massage.

The common shower or bathtub has its place, too. The hot shower is especially valuable in shoulder injuries where diathermy is not available, or where the use of the whirlpool would be awkward, if not impossible. Under the hot needle shower, the shoulder may be freely exercised while

Continuous application of hot towels provides a reasonably good substitute for the whirlpool, when the latter is not available.

receiving the water's massaging effect. The athlete finds it most convenient, too, since it is accessible as often as he desires. The bathtub is a reasonably efficient substitute for the whirlpool in injuries to the lower body, where the patient may keep the damaged area immersed. Continuous application of hot towels to an injured knee may be accomplished with a minimum of inconvenience with the athlete seated on the edge of the tub.

Ask Me Another

By Lil Dimmitt

Head Trainer and Varsity Track Coach, Texas A&M College

THE first of the series of questions and answers to appear in the *Ask Me Another* column is devoted to equipment. Your questions need not be limited to this phase, but may include those on treatment of injuries or training room practices, and, if not too swamped with training questions, I'll take on some about the various sports.

Question: Why can't the rules be changed so that my extra-point kicker can take off his helmet to try for the point? He says it bothers him and he misses. We lost a game last season because he missed one that counted.

Answer: We trainers fought a long time to get that rule in the books and we intend to fight any move to take it out. Your boy is in as much danger on that play, as he is, if he were punting, and we hear few requests to let him take off the helmet then. Most boys never think of taking it off then, so why take it off for the try for point. Teach your players to wear their helmets all the time they are on the field, be it dummy scrimmage or the actual hard contact. We do that at Texas A&M and if fellows by the name of John Kimbrough, Bill (Jitterbug) Henderson, Joe Routt, Felix Bucek, Marshall Robnett and Joe Boyd can make All-America under our system, then there must be something to it. None of them ever suffered from a head injury or complained about wearing their helmets while on the field, even for usual limbering-up exercises before we start real work. Your boy is merely using the rule as an alibi. Talk him out of it.

Question: What do you think about wearing shin guards?

Answer: All during the season the linemen should be protected by shin guards. There is too much leg whipping in the line and they are apt to receive an injury which will place them on the bench just when you need them most. Shin guards avoid bruises and have players in shape for Saturday, so have them wear them in practice all week as well. Felix Bucek and John Kimbrough, a fullback, always wore them and they both

ONE of the better known trainers of the nation, Lil Dimmitt, who has appeared at many coaching schools, has consented to conduct a trainer's column and, herewith, answers some of the questions asked him at past coaching schools. Perhaps the answer to some of your problems are in this list. If not, write him at Texas A. & M. College, College Station, Texas, and the question and answer will appear in future issues of the ATHLETIC TRAINERS JOURNAL. The readers of the JOURNAL last year will remember the statement made in Lil Dimmitt's article, "We give a standing invitation to all high school trainers and coaches to submit to us any training questions they may have and, if at all possible, we send off the reply by return mail. At times we have sent our replies by telegram." Since Dimmitt was accustomed to rendering such service as this, he was the natural to head up the "Ask Me Another" column. The editorial staff of the TRAINERS JOURNAL is pleased to present Lil Dimmitt to its readers. Send him your questions. Editor's note.

were pretty fair country-ball players. Perhaps you use them on bruised legs only, but I advise wearing them on both legs, if one is bruised as that one is an invitation for the opponents to work on the injury and take the man out of action sooner. We learned that lesson when Kimbrough hurt one leg. We put a guard on it, and that day the opponents seemed to work on that sore leg. We took him out, put a guard on the other leg and it so confused the tacklers that they forgot which was the hurt one and he was able to play out the full game without any more trouble.

Question: I seem to have too many shoulder injuries. What can you attribute that to?

Answer: Probably, you are using worn pads or have not taken the trouble to fit them to your players. Cantilever pads which become flat are in contact with the shoulders and rub sore spots. Discard those which are worn and buy new ones. You may save money, but you lose valuable players and ball games. Don't use those poor pads on your scrubs either. They grow up to be first stringers and an early shoulder injury may ruin them for all time.

Question: Some of my best players are complaining about hip injuries. They wear blocking pads but still they show up with bruised hips. What is the trouble?

Answer: First, they should be of the proper size, so that they will remain in position and not shift around as your player moves. This movement will cause pinching of a nerve, and although it is painful, it will not turn out to be a crippling injury. It slows down your players as they always will favor an injured place and one slowed-down player throws the team off balance. These nerves are at the top of the hip bone, so be sure that spot is covered. We have our pads made with foam rubber instead of cotton paddings, as we find that the perspiration does not soak up as much and add weight to the pads. They last longer and this offsets the slight additional cost. The pads dry more quickly, if rubber is used. The best treatment for this pinched nerve injury is heat and massage with a good analgesic balm.

Question: What do you suggest to avoid scratched and bruised knees?

Answer: After several years of trying almost every kind of knee pad in our football pants, we hit upon the idea of using a foam rubber basketball knee pad and have done away with padding in the pants. We find that it stays in place, gives a measure of support to the knee and gives the players a feeling of confidence. When they put a knee to the ground they are sure that there will be some padding there and not have to take it on the bare flesh. This year we had fewer knee injuries of all kinds than ever before.

Question: Tell me something about thigh pads. My boys say they shift about too much and at some time fall out of the pockets.

Answer: Since the invention of the two-way stretch pants they hold the pads in place and prevent that shifting you mention. I consider this the best feature of the two-way stretch equipment. I might warn you about the way you handle the thigh pads in your equipment room. If you stack them on top of each other, the weight will flatten out the bottom ones and prevent even distribution of the blows they are supposed to take. When you find flat ones in stock, you had better throw them out and get new ones.

Question: How do you avoid sore feet and injured ankles at Texas A&M?

Answer: By seeing that each boy is fitted with the proper size and type of shoes, just as though he were walking into a shoe store and paying for them himself. We fit every boy to his right size, instead of handing him out the size he asks for. We have him in his full equipment when he is fitted so we can see how much the foot will spread under the added weight. We see that there is no free action, and still we do not allow any pinching. Those factors will slow down any player and at the same time ruin his arches. Take a freshman with a poor shoe fit, and by the time you carry him on in the same size to his senior year, he will be of no use to you. Shoes are expensive, so see that you fit them properly and they will last longer. While I am on shoes I'll pass on a few more tips. Make your boys lace their shoes clear to the top. We found some of the boys lacing them to within two eyelets from the top and then tying the laces. We also found these boys with rubbed feet and twisted ankles. Shoe manufacturers have made shoes to specifications of coaches and trainers, so why go against their judgment and let players wear them partly loose. You have lost much of the ankle support when you do not lace them to the top. You may as well buy a baseball type shoe, if you do not take advantage of what you have bought. Demand that your equipment supplier give you the best shoe laces he can get, and I don't mean rawhide ones. Don't let a boy splice up broken laces, but give him new ones. A complete change occasionally will keep the shoes snug on the feet. Some boys are too lazy to change shoe laces or cleats, so I suggest that you have one day a week, when you examine both and have replacements made where needed. In the interest of economy we have practice shoes and game shoes, but in each case both are fitted to the boy who is to wear them. Some of our backs will use up four or five pairs of shoes a year, but we never complain, for we know that worn shoes would cause injuries which might make the player valueless to us when we need him. Our game shoes are the same type as our practice shoes but are lighter in weight, especially those worn by our backs.