

THE JOURNAL

of the *National Athletic Trainers Association*

WINTER 1967
Volume Two, Number Four

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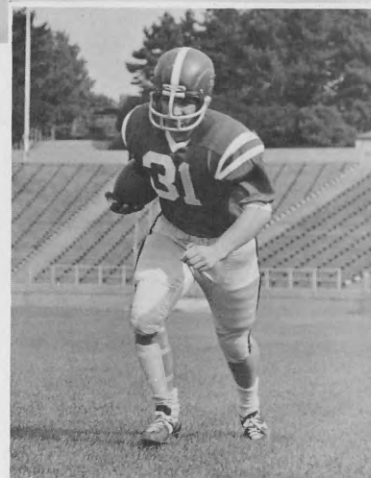
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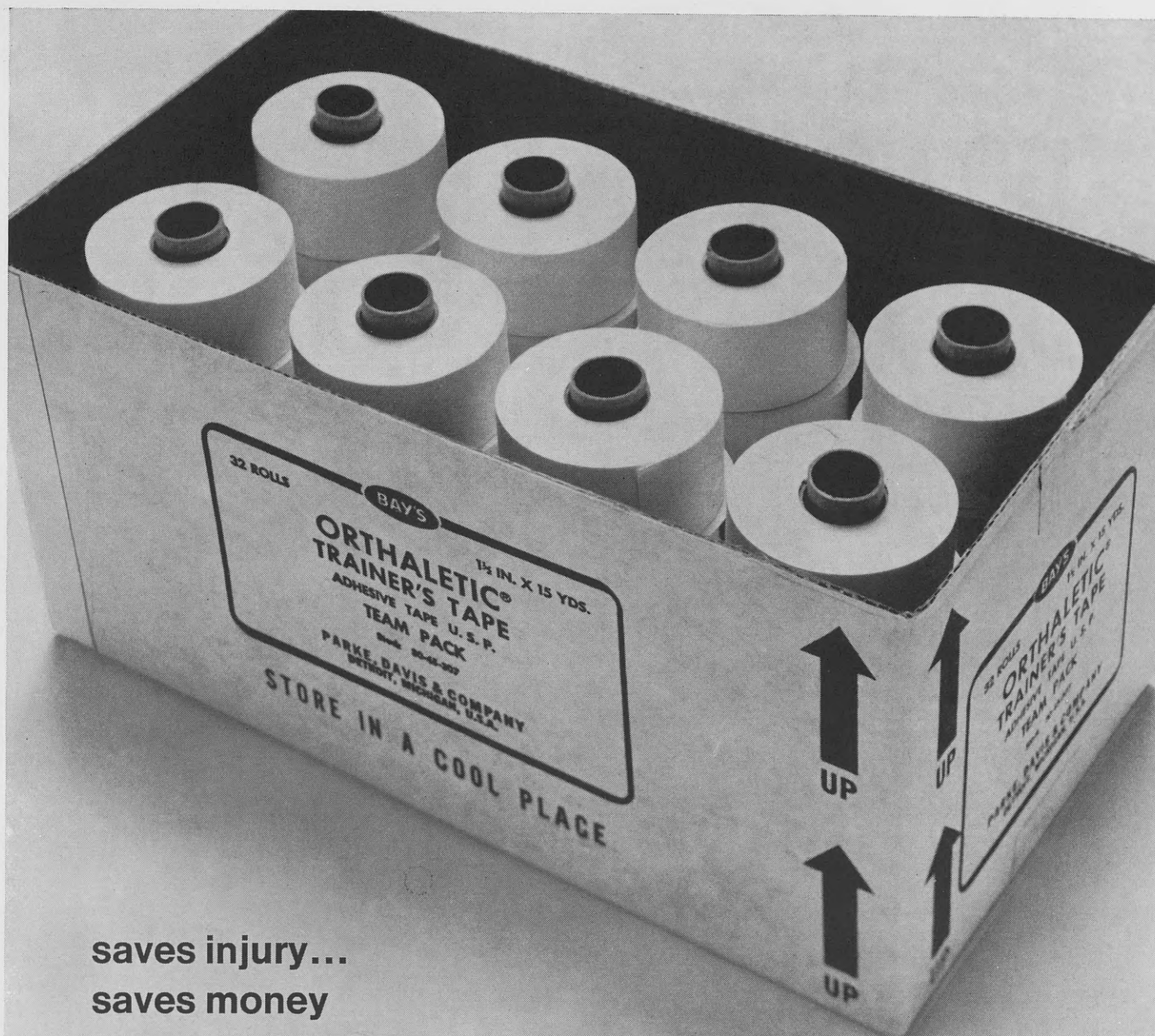
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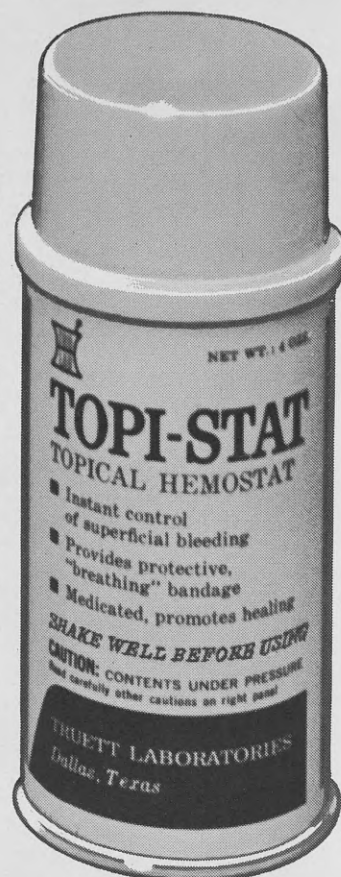
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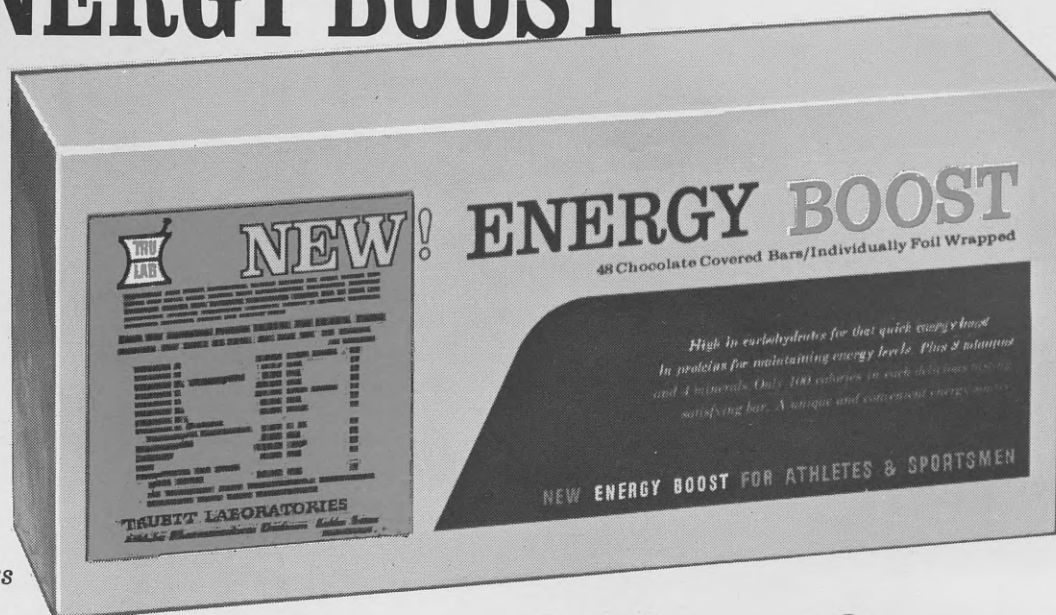
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THE JOURNAL

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The *NATA Journal* editors welcome the submission of articles which may be of interest to persons engaged in or concerned with the progress of the athletic training profession. The following suggestions are offered to those submitting articles for consideration:

1. All manuscripts should be typewritten, double-spaced, on ordinary typing paper, 1500-2000 words.

2. When references are made to other pub-

lished works, include superscript numerals and appropriate footnotes giving author, title of book or article, periodical or volume number, pages, and date of publication.

3. Photographs must be black-and-white prints, preferably on glossy paper. Graphs, charts, or figures should be clearly drawn on white paper, in a form which will be readable when reduced for publication.

4. It is the understanding of the *Journal* editors that any manuscripts submitted will not have been published previously.

Unused manuscripts will be returned when accompanied by a stamped, self-addressed envelope. Please address contributions to the Editor.

Management of Muscle Injury

Richard Patton, M.D.

Ohio State University

Address to NATA Meeting, June 10, 1967

I would like to start out with the ABC's. The simple problem of what is a muscle injury. First, what happens when a muscle is injured? Second, what we can do to assist in the healing of this muscle? Third, what can we do to protect against injury?

Considering the first, and really starting back to the ABC's I think that we have to remember that all a muscle is is a collection of single cells that are grouped to perform a function. A single muscle cell has the power of contractility, which most cells don't have. A cell is a peculiar structure. If a cell has no special function, then it tends to heal very easily by normal mechanisms. If the cell does have a special function, in other words, is more specialized, healing is more difficult. In addition to this single cell, the cells are grouped together. These cells are loosely attached together, and are also attached to a string of fibrous tissue at each end which is the tendon. Thus we have a group of muscle cells organized together in a fairly firm fashion and working together. We can't forget, however, that no individual muscle acts by itself. It acts in conjunction with a group of muscles.

The attachment of this muscle is not ordinarily a single attachment. It has more than one origin, more than one insertion. If it didn't, it would be like the pulley or the guy wire on a crane. You have a wire, a pulley, and two fixed mechanisms, and you pull the wire and you contract, and you let it go and it opens up. Muscle function is much more complicated than this. It has what we call a segmental nerve supply so that part of the muscle is activated in certain functions, other parts are activated in other functions. If we look at the muscle groups we have to look a little further than a simple pulley and guy wire arrangement.

Let's take the quadriceps on the anterior thigh for an example. If the quadriceps acted like a pulley, then it would simply pull between the anterior spine and the tibial tubercle on the anterior surface of the tibia working through the patella. But it is more complicated than that. And if you don't believe it, look at the muscle

some time when you do isometric contractions. I will admit we are speaking of a muscle group. This isn't one isolated muscle on the anterior thigh. But since we are speaking of a muscle group, and that is about as accurate as we can do diagnostically, we have to realize and recognize the fact that the upper part of the muscle group has a certain function, the mid portion has a certain function, and the lower, lateral, and medial portions have certain functions.

WATCH ISOMETRIC CONTRACTIONS

Watch your isometric contractions sometimes or watch what happens when you have a boy on a pulley arrangement to strengthen his quadriceps. If you take an individual and put him on a single exercise, if you put him on a weight and pulley mechanism he will only strengthen one portion of this muscle. He'll strengthen that portion right there. If you watch it you will see why. When this knee is flexed at 90 degrees and you put a weight and pulley arrangement on the end of his leg and have him extend his knee, then he uses this portion of the muscle. If you only use this exercise, this is the only portion of the muscle he will strengthen. Now, if in addition to this you will have him use this weight and pulley and flex the hip as an additional exercise, he will also use the upper medial portion of the muscle. Then if you add the two other exercises, isometrically or by weights, abduction and adduction, then he will strengthen this portion of the muscle. In other words if you are using isometric contractions to strengthen the quadriceps muscle, you must do it in various positions.

If you are trying to strengthen the knee, you have to strengthen the quadriceps and the hamstrings too. If you are going to use the hamstrings as a muscle group, you must do it in various positions because if they work on hamstrings again isometrically or with weights in complete extension, they use a different part of the muscle group than if you work in 45 degrees or 90 degrees flexion. So you must vary your entire exercise program because you are not

working with a single, simple, isolated function. You are working with a group function, and I think this is quite important. For instance, in the post operative knee using isometric or weight exercises to strengthen the muscles around the knee, you use the quadriceps in its various positions and types of functions, you use the hamstrings, you use the adductors, the abductors, and the rotators. If there is atrophy and you are trying to correct it, you judge your program to build up the entire muscle group.

How does a muscle heal after injury? An injury to the muscle cell is much like an injury to any other tissue. An injury to a muscle cell is just like the skin incision that the surgeon makes. It heals like the head laceration that occurs when a man is thrown through the windshield, but with a change that is dependent upon the specialized muscle function. Let's just imagine for a minute that we can have an isolated laceration, or a single muscle cell. Now if we have this isolated laceration, it will heal if those muscle ends are in opposition, and if there is no blood or clot between them by what we call primary union. In other words, the cell will put out a minimum of blood, a minimum of granulation tissue, scar tissue will rapidly, within 48 or 72 hours proceed through this area of hemorrhage and produce union. This union will begin in about 36 or 48 hours will reach approximately forty percent in six or seven days and approximately 85 percent in 14 to 17 days. So we have a rather rapid union by this primary method.

Remember, this muscle is a specialized cell. And often times we can't get this type of primary union because this muscle is contractile. If you cut the skin, it is not particularly contractile. If you cut fascia, about the only reason it is contractile is if it is attached to muscles. But every muscle cell is contractile. So with any type of injury to that single muscle cell a contractile force applied to each end of this cell, and you may have a clot or hemorrhage that gets between the ends of this muscle cell. Then you have a larger area that must be bridged by scar tissue, and you have a slower process. In this instance, healing doesn't start for 72 hours, the actual measured strength of this union is probably not 40 percent until 10 days, 85 percent strength will be in three or four weeks instead of in 14 days. This is by second intention.

There is one other variable, and that is the fact that one single muscle cell is never damaged all by itself. I'm sure you've seen muscle injuries in which you can feel no defect, and then again

you'll see muscle injuries in which you can lay your hand in the defect. This is simply a matter of amount. The same process occurs, the same cells are injured, but of course, in the one with no defect only a few cells are injured, and in the one with a big defect, a lot of cells are injured. We do occasionally reach the point where this muscle group is entirely separated, the contractile force pulls each end apart, and this type of a muscle union must be repaired surgically. However, this is rare. In the muscle injuries we see less than 1 out of 100 has a muscle so damaged that it needs surgical repair. Practically all of them heal by primary or secondary intention.

VARIOUS TYPES OF REST

What steps we can use to assist healing in this area? The first thing is our old friend rest. If a number of muscle fibers are damaged, you need rest to prevent retraction, decrease the hemorrhage, and decrease the edema. We also need to avoid re-injury. Now rest doesn't mean we have to put this individual in a cast and stick him in bed. Rest may mean a lot of different things. It may mean avoidance of re-injury, for instance, over a muscle group by some type of protection from the outside. Because once this muscle is injured, it can be re-injured by direct trauma as well as indirect trauma. It may mean a taping program to prevent overstretching of this muscle. It may, in certain instances, mean complete rest to the patient, even to go so far as a splint or bandage or even rarely a cast. But rest of some type or other depending again upon the number of muscle cells injured and the amount of hemorrhage that occurs, and their location, which is necessary. The next thing we think of is cold and pressure which will decrease both the edema which delays the wound healing in a muscle group and the hemorrhage which again is most important in the healing of this specialized cell. So use cold and pressure for the amount of time it takes the wound healing to establish itself, and we feel this is somewhere around 32 to 76 hours.

This is one place where I personally tend to use the injection method. In general, in athletic injuries, we tend to use other modalities other than direct injection feeling that they have many advantages and that injections in general have many disadvantages. But I'll have to admit that I turn around when I talk about muscle injury. Perhaps the reason we lean the other way is because of the special function of the muscle cells, and that is their contractility. There is a lot

of difference between primary and secondary union in the muscle cell. If we can inject a substance into this area to release this contractility and to cause dispersion of blood that has collected at the site of injury, then it seems to me that we can logically expect this to heal by primary intention. Therefore, we do inject a dilute local anesthetic and a dispersing agent, hyaluronidase, into most muscle injuries. It appears that in the period of time we have been doing this, well over 10 years, that we've seen a distinct improvement in those muscle injuries that are associated with local trauma.

It is obvious that if you are injecting, and you inject a spot because you have a generalized muscle tear or a generalized hematoma, the injection is not going to help. If you have a local spot of tenderness, swelling, or hardness, which are the things that we associate with a muscle tear, then these could be injected. We use very dilute xylocaine, one quarter to one half percent and about 500 units of hyaluronidase injected directly into the area. Particularly in the quadriceps and hamstring pulls chronic problems have been avoided. I'm also sure that our other methods of treatment have been just as important because this is no panacea, it doesn't control all problems. But we do use it frequently.

In addition to the local injection, this is an area where controlled exercise is very important. How do we justify talking about controlled exer-

cise in the same breath that we talk about rest? I'll admit that this is a hard problem to properly explain. But what you really do is have two factors. The first factor is that of not wanting to increase the local damage due to muscle tear. The second factor is the disuse atrophy that begins immediately with the injury and progresses until you begin some form of controlled muscle exercise. Probably the criteria value of most in determining whether exercise is safe for each individual patient is the amount of pain they have with exercise. I think if muscle exercise is possible without pain, then it is right. But if muscle exercise causes pain then it is wrong. This is a fairly simple method of determination, but it works, as many other simple things do. As soon as the tenderness is out of the muscle tear, controlled exercise can be begun. This doesn't mean going back to activities, running up and down stairs, unlimited weight lifting, this sort of thing. This means a program of perhaps isometric or limited weight lifting under supervision and always stopping short of pain until a time when the normal muscle motion and power can be approached.

In conclusion, our program, our steps to assist healing are: rest, cold and pressure, local injection, and controlled exercise. Basically, I don't think there is too much conflict between rest and controlled exercise, if you use pain as your criteria.

Training Staff at NCAA 1967 Track and Field Championships

Shown below are the members of the 1967 training staff gathered for the NCAA track and field championships at Provo, Utah. Standing, left to right, are: Jack Williamson, University of California; Marv Roberson, host, Brigham Young University; 'Ducky' Drake, University of California at Los Angeles; Bill Robertson, Oregon

State University. Seated from left to right: Earlin Tobler, Nevada Southern University; Rodney Kimbal, host, Brigham Young University; Lindsay McLean, San Jose State College; Gary Tuthill, University of Southern California; and Paul Schechter, Occidental College.



A Discriminative Study of Four Methods of Preventing Blisters

Terry Edward Frank

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For many years the coach in the public school system has had to face the problem of pre-season blisters. This problem takes away valuable conditioning and skill development time from the athlete and also presents a problem to the coach in his effort to build a well-conditioned team to represent the school. This problem is also a major concern to the athletic trainer.

PURPOSE

It was the purpose of this study to examine the hypothesis that there was no significant difference among four methods for the prevention of blisters: (1) two pairs of medium weight socks; (2) two pairs of socks, one light weight, one heavy weight; (3) Tuf-skin and powder; and (4) vaseline.

REVIEW OF LITERATURE

The literature available was scientifically vague as to the best method of preventing blisters and lacked true scientific investigation. However, in years of experiences (informal experimentation) by the writers and athletic trainers, some plausible ideas pertaining to the prevention of blisters have been presented.

Many authors (1,5,15,16) noted the importance of reporting the first sign of a blister (on the foot, a "hot spot"). It was suggested that the player immediately stop activity and cover the "hot spot" with petroleum jelly in order to stop the formation of blisters. Some authors (6,7,9,13) noted that adhesive tape or adhesive felt to known pressure points on the foot would also help prevent blisters. Three other methods of preventing blisters found were soaping the inside of socks (18), soaping the inside of shoes (16), and reversing sweat socks (8). Alum water baths (12,14) tannic acid soaks (13), and the immediate application of cold water to hot spots (3,4,13,16) were other methods of preventing blisters. Brown and Childers (4) combined efforts for a recent scientific study on blister prevention

using application of cold water. A contingency coefficient of .707 indicating a high positive relationship between cold treatment and the absence of blisters was found.

Many authors (2,4,6,8,10,12,13,14,20) suggested hardening the feet with effective astringent (including solutions of benzoin) followed by the application of powder. Also for the prevention of blisters, it was suggested that two pairs of socks be used (2,4), a light pair and heavier pair of socks be used (7), and that cotton or silk stockings under wool socks be used (8,10). Many authors (2,4,6,8,10,13,16) suggested the combination of using Tuf-skin and powder method with wearing two pairs of socks.

In summary the authors seemed to have various ideas regarding the prevention of blisters. However, the use of two pairs of socks, the use of Tuf-skin and powder, the use of vaseline, many combinations thereof, and other methods all seemed to be acceptable practices of preventing blisters. This study analyzed just four methods of preventing blisters.

METHODOLOGY

The subjects for this study included 181 prospective basketball players from seventh through twelfth grades in two Mid-Indiana Conference Schools (Northwestern High School and Taylor High School). All coaches randomly assigned the prospective basketball players to the four study groups. The four groups used were as follows: (1) *Group wearing two pairs of socks, one light weight pair, and one heavy weight pair.* This group wore the light pair of socks next to the foot and the heavy pair of socks over the light pair. The coaches were provided with samples of light, medium, and heavy weight socks to show each group. (2) *Group wearing two pairs of medium weight socks.* This group wore two pairs of medium weight socks. (3) *Group using Tuf-skin and powder.* This group applied liquid

Tuf-skin to the bottom and heel of the foot with a brush, let the Tuf-skin dry to a tacky state (approximately one minute), put the foot into foot powder, and then put the foot into a heavy weight sweat sock. (4) *Group using vaseline*. This group started every practice with one pair of heavy weight socks. If at any time during the practice session, the player felt a blister (little "hot spot" on the foot) coming on, the player immediately went to the manager or student trainer and took off his shoe and sock. A dab of vaseline was put on to completely cover the "hot spot". The player put his shoe and sock back on and returned to practice.

The steps in the administration and collection of the data were divided into three main parts. The first step was a letter to the coach which included the purpose of the study and an outline of duties necessary for the coach to carry out this study. The second step, directions for the student trainer or manager, was designed to utilize the services of a competent student trainer or manager. They were given the responsibility of helping the coach in checking the participants to see if they were following their correct method of preventing blisters. The directions for the student trainer or manager included instructions on how to record the number of new blisters which developed and also gave the definition of a blister. The third step was the collection of information via a questionnaire. The questionnaire included several questions to be answered by the student and a place for the recording of new blisters received.

The study was run for the first five days of basketball practice at two schools. There was a 100 per cent return from both schools. The returned questionnaire responses were keypunched onto IBM cards for each individual, and the cards were sent through the computer Program 96607, Analysis of Variance; One-Way.

ANALYSIS

THE QUESTIONNAIRE

The introductory letter to the coach, the directions to the student trainer or manager, and the questionnaire were given to several graduate assistants and doctoral candidates in Physical Education at the University of New Mexico for their criticism and evaluation. It was felt by the physical education evaluators that this questionnaire and its related directions and letter to the coach were suited for the collection of data sought.

BASIC CONSIDERATIONS

It was difficult to distinguish from the literature reviewed the importance of each and every possible cause of blisters. It was apparent that all possible causes have some influence on the incidence of blisters. To what extent these causes form blisters has not been scientifically investigated. It was felt that with 181 participating students and the randomization of groups in this study that the influence of the causes of blisters was randomly located throughout all four study groups. This would not affect the analysis of variance results.

ANALYSIS OF VARIANCE

To test the hypothesis, the analysis of variance among the four study groups and the incidence of blisters was used. First, analysis of variance was computed for School A; then analysis of variance was computed for School B; and finally, analysis of variance was computed for Schools A and B combined.

Table I shows the total number of participating students in each of the four study groups and also the incidence of blisters. This information was the basis for the analysis of variance among the four study groups and the incidence of blisters on the left and right foot for School A, School B, and the combination of Schools A and B. The F quotients for School A, School B, and the combination of Schools A and B were not significant at the 5 per cent level of confidence (5).

TABLE 1
STUDENTS PARTICIPATING IN EACH STUDY GROUP
AND THE INCIDENCE OF BLISTERS

STUDY GROUPS*	SCHOOL A			SCHOOL B			SCHOOLS A AND B			TOTALS
	Total No. of Students	Total No. of Blisters Left	Right	Total No. of Students	Total No. of Blisters Left	Right	Total No. of Students	Total No. of Blisters Left	Right	Total No. of Blisters
1	21	3	4	24	9	13	45	12	17	29
2	22	4	5	24	10	12	46	14	17	31
3	20	5	4	23	10	11	43	15	15	30
4	23	1	2	24	10	11	47	11	13	24
TOTALS	86	13	15	95	39	47	181	52	62	114

*The study groups are as follows: 1—Two pairs of medium weight socks group
2—Two pairs of socks group: one light weight pair, one heavy weight pair
3—Tuf-skin and powder group
4—Vaseline group

CONCLUSION

From this study it is concluded that the hypothesis, "there was no significant difference among four methods for the prevention of blisters: (1) two pairs of medium weight socks; (2) two pairs of socks, one light weight, one heavy weight; (3) Tuf-skin and powder; and (4) vaseline," must be accepted.

RECOMMENDATIONS

It is recommended that more subjects be used. Many more methods and combinations of methods could be tested and compared. Controls on different possible variables causing blisters could provide scientific data pertaining to the causes of blisters. Provision for cleaning socks and the exact material composition of the socks could be controlled. Testing methods of blister prevention could be done in several sports over a period of several years and compared. Drills, conditioning, and other such factors could be controlled in this type of study in a large school using only two preventive methods. Studies could be run comparing the use of vaseline as compared to other lubricants. Taping vs. non-taping, type of shoe (new, old), lacing of the shoe, and many more ideas are all possible studies linked to the prevention of blisters and causes of blisters. Since there has been little research done in the area of blister prevention, imagination is the key to further studies.

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A Success Story

While in high school, Ronald Frick, assistant trainer at Miami (Ohio) University had to have a brain tumor removed. This ended his athletic career. After learning to walk again, Ron turned his time and energy towards what he felt was the next best thing—he became the student trainer for his high school in Toledo, Ohio. In high school he was highly regarded by his team, school and community, and upon graduation from high school his team gave him a special award for his excellent work. While in high school he was also trainer for the local pro football team, the Toledo Tornadoes of the U.F.L. He attended Miami University where he received a scholarship in athletic training. As a student at Miami, Ron still continued to succeed in his chosen profession; he received a game ball presented to him by the team, and became the second person ever to receive an honorary letterman's award with a special citation from the University President.

IMPORTANT NOTICE

If anyone has any article, pictures or information regarding WRESTLING, we would appreciate the information being forwarded to the Journal to be considered for possible publication. Material selected will be carried in forthcoming issue of the Journal.—EDITOR

LOW BACK PAIN

Buddy Taylor
Head Athletic Trainer
Tennessee A. & I. State University

Many athletes are plagued with low back pain at one time or another. There are several reasons for this type injury. One of the main reasons is an overstretch of the muscles in the lower lumbar region, which is the weakest spot in the spinal column. Pain can be found in any of the following areas: buttocks, posterior and lateral parts of the thigh, and the hip joint. Pain may be constant or spasmodic. Faulty posture habits or a pull or twist to the lumbar region may also cause this condition.

The best treatment for low back pain is the application of heat. This type of treatment tends to relax the muscles by sending a stimulating blood flow into the area. Heat may be applied in a number of ways. Some of the more common methods are: hot packs, hot baths, hot showers, whirlpool baths, sauna baths, diathermy and ultrasonic treatments. The temperature of the hot packs or baths should never be high enough to be uncomfortable to the athlete. A reasonable temperature for longer periods produces better results.

In situations where there are no whirlpool baths or any of the modern electronic devices, hot towels or a hot shower may be used. The athlete should stand under the shower with the hot water falling directly on the lower back, hips and buttocks. This treatment should last from twenty minutes to one-half hour. Other hot water treatments should last from twenty minutes to

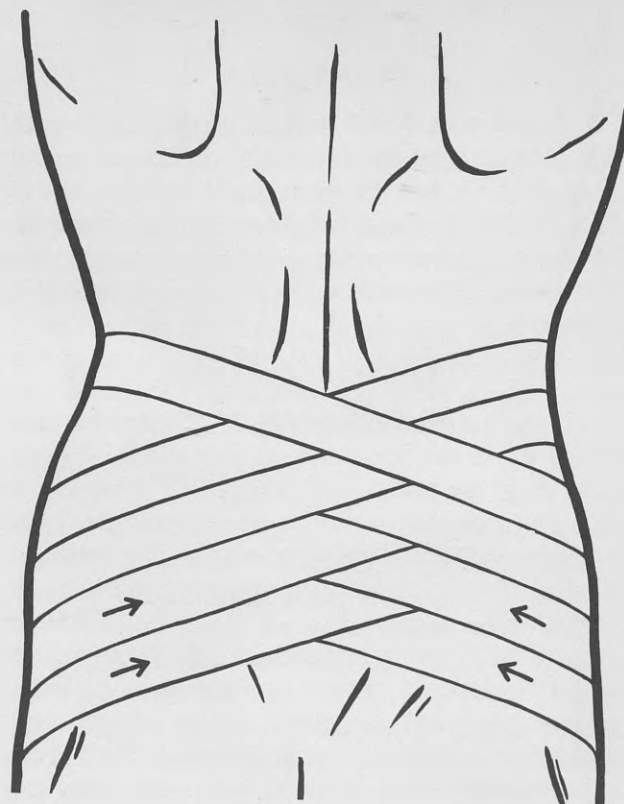


Figure 1

one-half hour. Following each treatment a light massage should be given to the injured area.

Following the application of heat the athlete should then do some back stretching exercises. These exercises will reduce muscle spasm by elongating the muscles thereby decreasing pain. One of the most successful exercises is the *rocking chair*. To do this the athlete should be supine, bring his knees to his chest, place his hands around his shins and rock back and forth. This exercise stretches the muscles, tendons and ligaments of the entire lumbar area which generally do not receive this type of stretch in every day activity.

Another exercise is the *back twist*, in this exercise the athlete lies on his back with the shoulders in close contact with the floor. The arms may be extended or bent at the elbow, but should brace the shoulder against the turn. While keeping the knee stiff, the athlete raises one leg to a perpendicular position and then swings it across the body until the toe touches the floor on the opposite side. To stretch the other side of the lower back, the athlete repeats the same procedure with the other leg.

The athlete can benefit from doing these exercises best by performing them both morning and afternoon. He may also benefit by doing them at night at home before he retires.

The professional trainer can perform passive exercises on the athlete by stretching his lower

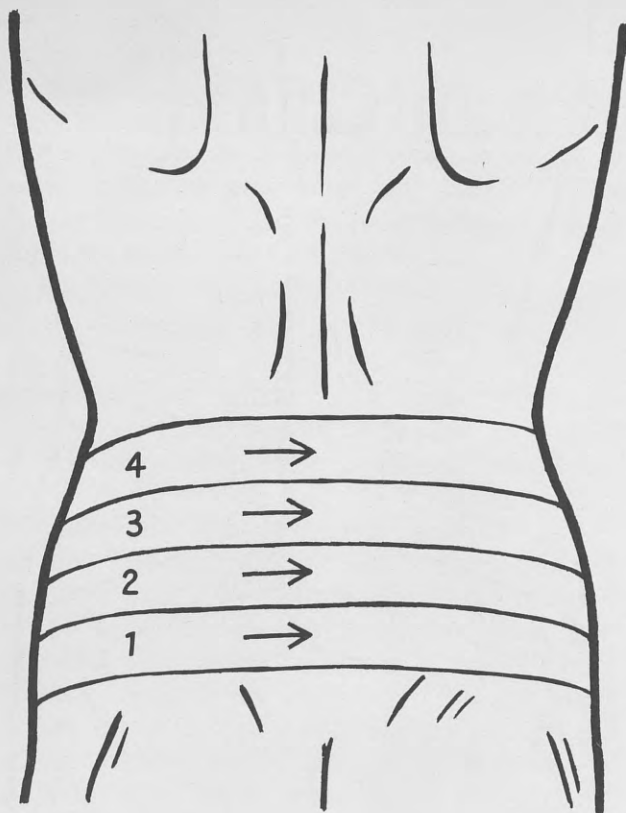


Figure 2

back muscles. This is performed by placing the athlete on the treatment table on his side with the athlete facing the trainer, the upper leg is bent so that the ankle fits approximately into the bend of the lower knee. The trainer's left hand is placed on the left shoulder and the right hand on the left hip. Light pressure is applied gradually and with a rocking motion to stretch the muscles. This procedure is then reversed to the opposite side. The trainer must lean well over the athlete to obtain a light twist with a lengthwise stretch. The stretching should be followed with an analgesic balm pack to the low-back area, and held in place with an ace wrap.

It is important that proper posture be maintained by the athlete in order to help prevent complications that come so often with low back pain.

Heat treatments, stretching, massage, heat packs and correct posture should continue until recovery. The number of days of treatment will vary according to the severity of the pain.

STRAPPING OF THE LOWER BACK

Adhesive tape therapy has proved to be valuable in the treatment of lower back injuries. The value of the adhesive tape therapy lies in the support and the limitation of movement which it affords to help decrease pain.

A low back strapping should not be left in

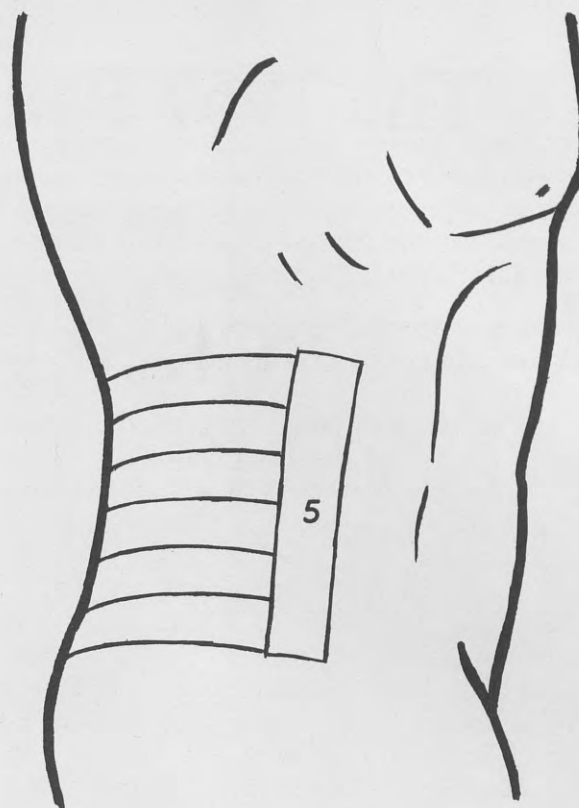


Figure 3

place longer than five days. The movement of the limbs in walking and sitting often produces a chafing of the skin.

In strapping the lower back, the athlete stands with his back to the trainer, feet together, and hands folded at the back of the head. The skin of the lower back is covered with compound tincture of benzoin. The strapping is made with one and one-half inch adhesive tape.

The first strip of tape is applied in a basket weave procedure working up from the buttocks. The means of application is with several alternate strips of adhesive tape on each side, angling up the back and crossing one another. Each strip overlapping the last one. A total of four strips is applied by this method, this is the first section of the strapping. (Figure 1)

Next a strip of tape is applied over the previous strapping, beginning just in front of the left hip, passing around the back to the corresponding point in front of the right hip. Proceeding upward, the next layer overlaps the first by a third of its width. A total of four strips is also applied in this method. (Figure 2)

An anchor strip is applied to the ends. (Figure 3) If the athlete is unable to stand during the strapping, it can be applied lying down. This may be necessary when pain is severe.

Adherence to the above suggestions, should relieve, to an appreciable extent, the pain associated with low back injury.

The 1967 Pan American Games

Fran Sheridan

Head Athletic Trainer, Lafayette College

On July 1st, 1967 the athletes of some 20 different sports began arriving at the University of Minnesota in Minneapolis. This was the site of the final training and selection of the men and women that would represent the United States in the V Pan American Games in Winnipeg, Canada. On hand to greet the athletes were 8 athletic trainers, 2 nurses, 3 physicians and 2 women trainers. The chief physician was Dr. Daniel Hanley of Bowdoin College, also Dr. A. A. Savastano, University of Rhode Island and Dr. George Greiner of the Kent School in Connecticut. The head athletic trainer was Bobby Gunn of Lamar Tech., Texas, also trainers Ed Byrne of Lamar Tech., Texas, also trainers Ed Byrne of Southern California, Jim Conboy, Air Force Academy, Porky Morgan, Kansas State, Ed Pillings, U. S. Military Academy, Jim Price, University of South Carolina, Gayle Robinson,

Michigan State University, and Fran Sheridan, Lafayette College. The two nurses were June Persson of Denver, Colorado, and Barbara Sabasteanski, Brunswick, Maine. Blanche Drury from Mill Valley, California and Ann Martin, Rochester, Minnesota were trainers for the female athletes.

The training rooms at the University of Minnesota were used by the trainers, and the Medical Center cooperated with their facilities. The many thanks of the trainers went out to Lloyd Stein, Minnesota Trainer who had prepared for the tremendous job at hand. Each of the trainers was assigned to several sports and all 8 worked in the training rooms between events. The training rooms were opened at 7:00 A.M. and remained available all day, the men took turns for night duty in the training rooms as well



Left to right, standing — Ed Byrne, Porky Morgan, Bobby Gunn, Jim Conboy, Dr. Dan Hanley, Gayle Robinson; seated — June Persson, Fran Sheridan, Ed Pillings, Barbara Sabasteanski, Jim Price.

as being on call in Centennial Hall. On some days as many as 75 people received treatments and tapings in the training rooms. A record of each treatment was kept and Head Trainer Bobby Gunn compiled the records and submitted them to the Olympic Committee.

On July 18, 1967 after almost 3 weeks of hard work, the trainers began to move on to the training quarters in Canada, Doctor Hanley and Bobby Gunn had made a scouting trip to Winnipeg to look over the housing and training rooms. The United States contingent was housed in Fort Osborne, along with 11 other countries. A great deal of excitement was aroused when a tractor trailer arrived on July 20th with some 300 cartons of medical supplies, to be used by the U. S. trainers. Everything had been boxed and counted and readied for the trip by the 8 trainers. Included was a whirlpool, 2 Infra-Red lamps, an Ultra Sound unit, a small Hydrocollater, and yards of tape and bandages. Needless to say the training personnel were thankful to the many different companies who had donated the medical supplies.

In Building #9, the training room was set up in one large room with another room used for the whirlpool bath. The 8 trainers had the room next to the training room as their living quarters. (Nothing will be mentioned at this time as to what transpires when 8 trainers sleep and live

together in one room, who gets the top bunk and whose turn to do the wash, another article could be written on this subject alone.) The Doctors' room was 4 doors down the hall and one of the doctors remained on duty all night long. The women trainers were housed with the female athletes at a school for the Deaf which was about 2 miles away.

The outcome of the Games with the U. S. A. winning 120 gold medals tells the story. The boys and girls did a fine job in the many events. Many, many track records were set, the U. S. won every gold medal in wrestling, broke records in swimming, was undefeated in basketball and won the first gold medal ever in baseball. I am sure each and every one of the trainers was proud to have been present at the playing of the National Anthem and the raising of the stars and stripes.

A special note of thanks was given by the U. S. Olympic Committee, to the Doctors and trainers for the tremendous job of taking care of the U. S. Athletes. I am sure I speak for all the trainers when I say we really enjoyed working with Drs. Hanley, Savastano and Greiner. People such as these three are a real credit to the Medical Profession and real friends of the NATA.

The games are now a thing of the past, but our many fine memories will be with us forever. We were all proud to have been selected to represent our National Association at these games.

Letters to the Editor

Dear Editor,

COMMENTS ON CRYOTHERAPY

Several interesting experiments could, and should, be done before the unreserved use of cold is employed. First, thermocouples could be placed at various levels under the skin to determine at what levels, if any, there is a depression of the temperature. This should be done in the living body. I would guess that there would be very little change at 1 cm.

Second, it would be interesting to note any change in the volume of blood perfusing the superficial and the deeper layers of tissues. Again, I would hazard a guess that the only change would be in the skin capillaries.

Thirdly, if electrodes could be placed at intervals of, say 1 cm., the area cooled, and calibrated shocks given, perhaps the effect on the threshold of pain determined. Again, I'd guess that there would be very little change beyond 1 cm.

Because, unfortunately, no two injuries are identical, no controls can be used to determine the efficiency of heat, cold, rest, active and passive exercise, elevation, etc. Therefore, all results are evaluated as mere clinical impressions, which are notoriously fallacious.

In any injury, certain changes occur: (1) those due to the injury, (2) then the immediate reaction of the tissues and body to the injury, and finally, (3) those necessary for the recovery from the injury.

The first change, therefore is the cutting, tearing, over-stretching, breaking, or crushing of the tissue involved. In a fracture, the continuity of the bone is interrupted, the periosteum torn, the adjacent nerves, muscles, ligaments, tendons, connective tissue, vessels, and or skin is cut, stretched, compressed, or torn. In a sprain, the ligaments are stretched beyond the point of normal stretch, and thus gross or microscopic tears occur in them.

These cause reaction on the part of the body. First, there is hemorrhage from the torn vessels. Then there is vascular spasm producing hemostasis enabling exudation of serum to occur. This swelling compresses the vessels, especially the thinner-walled veins, further impeding the circulation and also the peripheral nerve endings, and occasionally the larger nerves, producing pain. The classic quartet of inflammation of calor, dolor, tumor and rigor are produced.

The last changes are those of removal of dead tissue, blood, exudate, etc., accomplished by the various phagocytes and the blood. Then the tissues must be repaired. For these changes, the circulation must be re-established, because the only way the materials can get to the site is by the blood.

So the care of an injury can be divided into the

(A) Immediate care to

1. Prevent aggravation of the injury,
2. Decrease hemorrhage,
3. Prevent swelling,
4. Decrease pain;

(B) And the subsequent care, which includes a continuation of the above, plus

5. Surgical repair when indicated,
6. Re-establishment of circulation, and
7. Return to function.

The treatment of a fresh injury which I advise is cold, rest, elevation, and, if needed, analgesics. The rest is achieved by a splint, elastic bandage, or whatever is indicated. This is to prevent aggravation of the injury. Only those passive motions are permitted which are necessary to make a diagnosis. After that, motion is determined by the injury, damage done, and the healing that has occurred.

The application of cold and elevation is to prevent as much swelling as possible. Occasionally compression is also used, but I believe that the first two modalities will do more good. Elevation of the injured part is usually neglected, but can do more than cold because the cold has only a superficial effect. For example, a small cut on the finger will continue to bleed if the hand is suspended but will usually stop when held over the head. The subungual hematoma will "thump" less when elevated

than when it hangs down. In addition, elevation promotes venous drainage thus removing some of the serous exudate.

These are continued until no further swelling occurs. We usually continue the cold for 12 to 48 hours. After this the use of heat, in the form of hydrocolators, diathermy, ultra-sound, infra-red, paraffin baths, etc. is used. I believe that this will increase the blood supply thereby permitting more rapid healing of the damaged tissue. Elevation is continued as necessary.

Return to function is determined by the healing of the tissues. In the article by Moore, Nicolette, and Behnke in the Journal of the NATA, Summer, 1967, they quoted a number of miraculous cases. No. 4, a football player with a complete dislocation of the elbow did chins and push-ups on the 5th day and returned to full participation on the 9th. No. 5, a football player had a 3rd degree acromio-clavicular separation returned to full participation on the eighth day. If cryotherapy can heal torn ligaments at that rate, it will rate with the discovery of penicillin, X-ray and general anesthesia.

If cold can do this, why not apply it to surgical wounds?

EDMUND A. FLEXMAN, M.D.
Northern Illinois University
DeKalb, Illinois 60115

Dear Editor,

I wrote a letter to Pinky (Newell, Exec. Dir. NATA) recently regarding obtaining information on a fast talking salesman and about the Electro-Massage unit he is selling. Pinky told me to write to you about the possibility of putting a small notice in the NATA Journal. This salesman threw trainers' names around like confetti and naturally had many fantastic claims for his gadget.

The salesman was a Mr. C. E. Glancy from Des Moines, Iowa. He sells a high frequency vibratory Electro-Massage unit. Who in our profession has used it? Has anyone performed any valid studies with it? What are its tested physiological effects?

Word it anyway you want, Marv. But, is this just another "Quack" gadget being used by "non-professionals"?

GORDON L. GRAHAM
Head Athletic Trainer
Department of Athletics
Mankato State College
Mankato, Minnesota

Bits And Pieces

Clyde Stretch

When work began for the establishment of this column, it appeared as though it would start with a bang. A sputter would be a better description of its premier. This sputter could either go out or build into something that can be of some benefit to the NATA. Its future will depend in part upon all of you who are a part of the National Athletic Trainers Association.

A column in a professional publication, in order to perform an effective service to the profession, must at its onset attempt to give itself a working definition, a guideline for the future, so to speak. Perhaps the best definition for this column would be: An attempt to maintain a closer communication for the membership as it is spread nationwide between conventions. A less sophisticated description might be: A garbage can of news and ideas. This is not to suggest that the column will be mostly garbage, but more that it will be a place to put short news items and ideas which are of interest, and yet alone they could not be presented. Here is an introduction to *Bits and Pieces*.

○ ○ ○

Our journal editor, in the last newsletter for the American College of Sports Medicine, asked that organization's membership for articles that might be placed in our journal. This would seem to be a sad reflection on our own membership. Why should our editor have to look elsewhere for material? Of course the *Journal* has expanded and has a need for more material, but stop and look at the past four issues. How many articles can you find that were original, from NATA members, and written for use in the *Journal*? We cannot, nor should we have to, depend upon any other group to supply material for our own publication.

○ ○ ○

Those of you who attended the 1968 convention in Columbus may remember a presentation

by Bob White of Wayne State University dealing with the management of muscle injuries. In his presentation he demonstrated a method of taping the thigh which he thought to be effective and yet not of common knowledge to most trainers. Perhaps others of you have some special technique for handling an injury, one that is effective but not very well known. If you do have such a technique, why not do one of two things: 1) If it is a fairly elaborate procedure, write an article about it and submit it to Marv; or 2) If it is a fairly simple procedure or a new twist to an established procedure, pass it on through this column.

○ ○ ○

A brief reminder: Don't forget to return your survey cards on the freon coolants and the summer physical therapy program. Hopefully, the results of the surveys will be presented next issue.

○ ○ ○

Although there is nothing to report at this time, future columns will announce upcoming meetings and clinics dealing with areas of interest to the athletic trainer. An attempt will be made to do the same with newly published books.

○ ○ ○

It was mentioned earlier that a good portion of the success of this column depends upon the membership as a whole. Here is what you can do to help. Take the title of the column, *Bits and Pieces*, seriously. Stop and think about whether you have anything: questions, ideas, suggestions, or news, that you would like to lay before your fellow trainers. If you do, jot them down and mail them to: Clyde Stretch, 150 Jenison Fieldhouse, Michigan State University, East Lansing, Michigan 48823.

New Book On Conditioning For Baseball

PRE-SEASON, REGULAR SEASON, AND OFF SEASON

by Robert R. Spackman Jr., M.S., R.P.T.

*Reviewed by Marvin Roberson,
Brigham Young University, Provo, Utah*

The author feels conditioning for baseball is a twelve-month job. This volume was written for all baseball players from the Little League through professional baseball; for the coach and trainer who is interested in giving his baseball players a complete program to follow throughout the entire year. Divided into pre-season conditioning, regular season conditioning, and off-season conditioning programs, pictures and descriptions show the baseball player many warm-up and pre-game stretching exercises. A complete isometric strength exercise program with illustrations shows the athlete how to build up every muscle group in the body. A sprinting, cardiovascular exercise schedule is set up

for each position on the team.

The information developed in this book is so vast and extensive and covers the field of baseball conditioning so completely that the reviewer feels it might be a hard task to adapt all the information given into one program. Because all programs are involved in different types of facilities it is recommended that one use the information best suited to their facilities. The reviewer feels the author has covered his topic to the fullest extent and has inserted many good new ideas in his book for year around baseball conditioning.

Published by Charles C Thomas, Springfield, Illinois, illustrated, \$7.50.

William R. Farrell, Arkansas Trainer, Dies at 58

William R. Ferrell, 58, head athletic trainer at the University of Arkansas since 1950, died recently, the victim of a three-year fight against leukemia. The father of 11 children and one of the most beloved figures in Razorback athletics, he passed away on the eve of what would have been his 18th season of Razorback football.

A past district representative of the National Trainers Association, Ferrell received the highest honor that could be paid a collegiate trainer last spring with introduction into the Helms Athletic Foundation "Trainer's Hall of Fame". He attended the national convention at Columbus, Ohio, last June with assistant trainer Jim Bone — and received a standing ovation at the formal induction.

Born in Norfolk, Va., February 3, 1909, Ferrell graduated from the College of William & Mary in 1932 following a fine athletic career that included letters in football, baseball and wrestling. He coached college baseball, had a brief pro baseball career, directed a New York athletic club and finally served as trainer and baseball coach at Drexel Tech in Philadelphia, Pa. It was from Drexel Tech that he came with the staff of Coach Otis Douglas to Arkansas in 1950.

New Thirst Quencher

In the fall of 1965 at Florida University, Dr. Robert Cade, a Professor of Medicine in the University's College of Medicine, was determined to make a study to find out what percentages of vital body chemicals are lost during a football game. From his studies, Dr. Cade developed an isotonic (thirst quenching) drink which in his opinion would replace the body's loss of water, sodium, potassium, phosphate, and glucose. He called his drink GATORADE.

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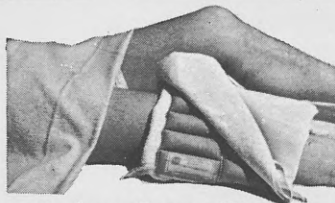
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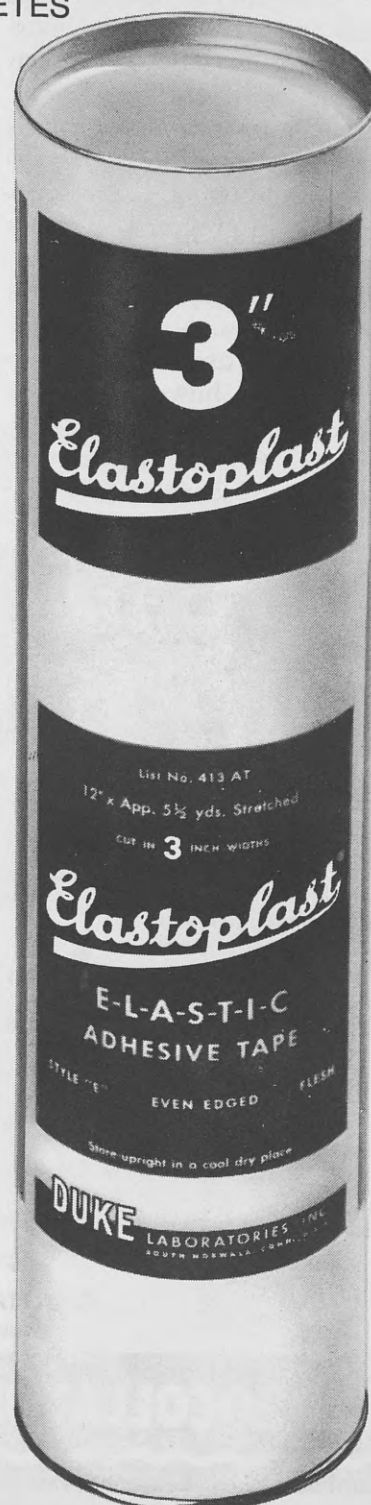
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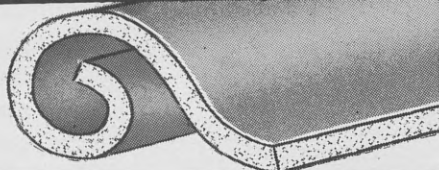
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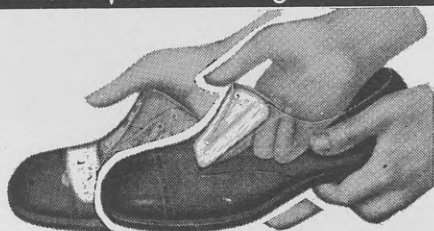
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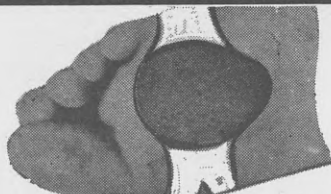
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water instead of Gatorade and five boys passed out from heat exhaustion. Then the team began using Gatorade and only one player suffered heat exhaustion the entire season. They found out later that he had been drinking water instead of Gatorade during that particular game. More recent studies have shown the lemon-lime drink to be absorbed by the body to more than 12 times faster than plain water.

Dr. Cade and Brady Greathouse, head trainer, strongly feel Gatorade was instrumental in helping their football team in achieving an 8-2 record and an Orange Bowl victory on New Year's day. Because of its success at Florida—Gatorade has been in great demand by friend and foe alike. As a result of these demands the process to Gatorade has been turned over to the Stokely company. All inquiries concerning this new drink should be directed to: Mr. Jay Funderburg, Stokely-Van Camp, Inc., 941 No. Meridian Street, Indianapolis, Indiana 46206.

In Memoriam

The National Athletic Trainers Association has been saddened, the past few weeks, with the announcement of the deaths of three of its most prominent members.

Deceased is Charles W. McDowell, long-time trainer and

teacher at McCallie school in Chattanooga, Tennessee. Mr. McDowell was one of the oldest members of the NATA.

Deceased is Bill Ferrell, recent Hall of Famer, of the University of Arkansas. Mrs. Bill (Rita) Ferrell has asked the Journal to please express to the NATA membership her appreciation and how deeply moved she was by the many kind telegrams, letters, and flowers she received from Bill's many friends around the country.

Also deceased is Eddie Wojecki, another Hall of Famer, and long-time active trainer at Rice Institute in Houston, Texas.

We will miss all of these fine gentlemen and want to express our deepest sympathies to their families and loved ones. We all feel we have lost some great friends.—EDITOR

Recent Athletic Training Literature

This list is generally restricted to those areas of specific interest to the athletic trainer. Topics belonging to the broad areas of athletics, physical education and physical therapy will usually be omitted.

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Ask-Upmark, E.: "Allergic Phenomena Precipitated by Muscular Effort," *Acta Medica Scandinavica* 179:441-45; April, 1966.

Bender, J. A. et al: "Injury Control Through Isometrics and Isotonics," *Journal of Health, Physical Education and Recreation* 38: 26-7; February, 1967.

Bortz, W. M. et al: "Weight Loss and Frequency of Feeding," *New England Journal of Medicine* 274:376-79; February 17, 1966.

Corrigan, A. B.: "Rehabilitation of Injured Football Players," *Med-*

Calendar of Coming Events

Nov. 26—AMA National Conference on the Medical Aspects of Sports, Hotel Americana, Houston, Texas. Info.: Fred V. Hein, Ph.D., AMA Dept. of Health Education, 535 N. Dearborn St., Chicago 60610.

Jan 10-13—National College of Physical Education Association for Men, Rice Hotel, Houston, Texas.



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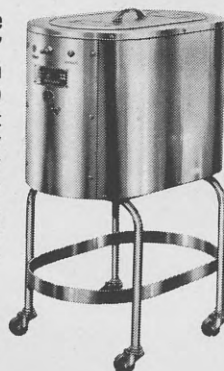


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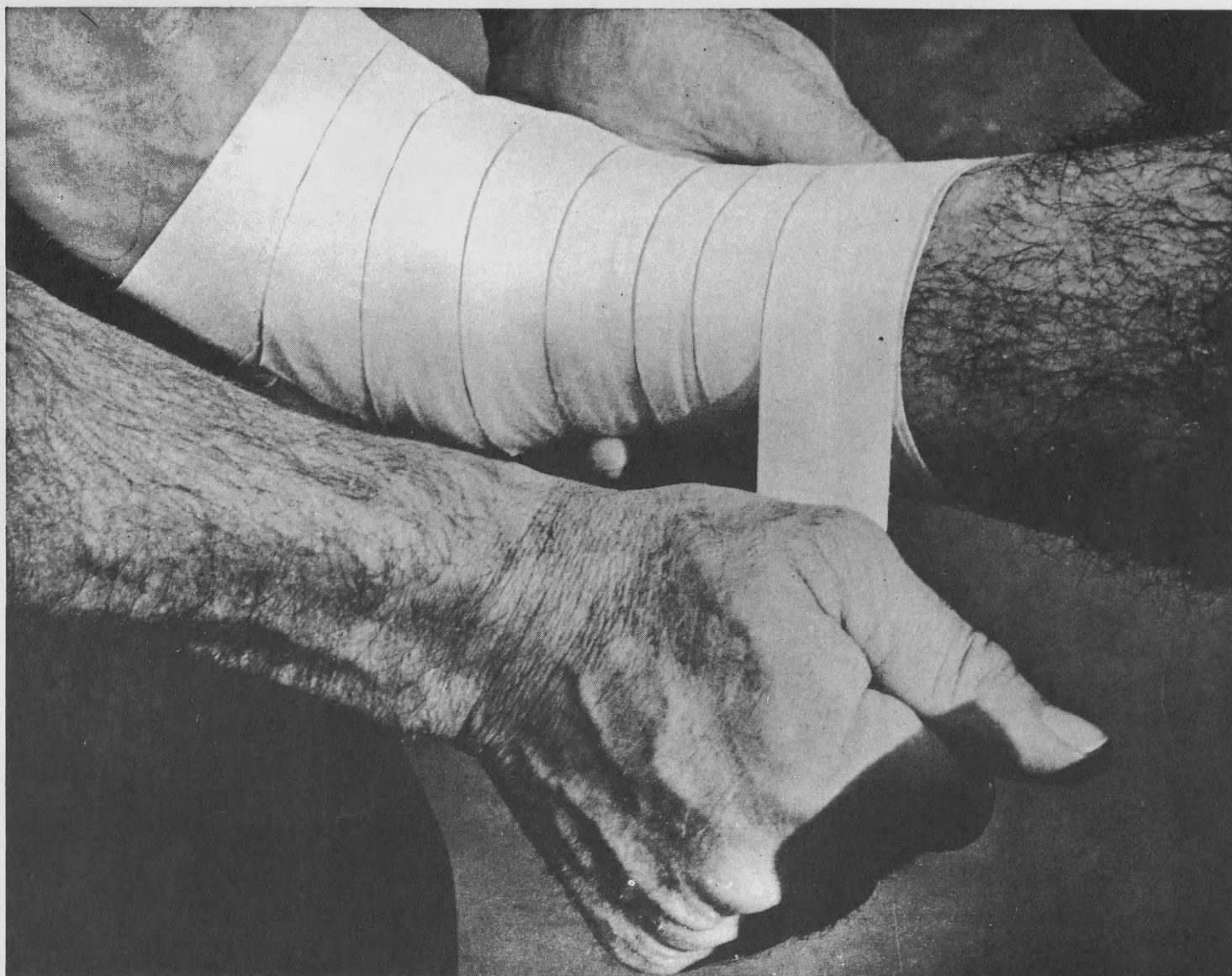


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HELP KILL JOCK ITCH

With kindness.

Cruex helps kill the fungi that cause jock itch. So don't be fooled by the fact that it doesn't hurt. (Can't you just see the faces of those kids who have heard getting "the treatment" for jock itch was murder?)

And while killing fungi, Cruex cools and soothes inflamed skin. Cushions raw skin against further chafing (like a powdery bandage). And it dries up perspiration—breeding ground for jock itch.

At the same time, Cruex helps destroy secondary bacteria that can create new infection.

Besides, it's so easy to use it's bound to get the team behind it.

It sprays into hard-to-get-at places.

There's no smearing. No spreading. No rubbing in. In fact, no hands at all. (And because it's not a big deal to use, your boys will keep up the treatment. Even use Cruex on their own as a preventive.)

Tell the boys about Cruex. And have it around. That's the big first step toward having the boys make a practice of using it.

And you know what they say about practice . . . and perfect. Take advantage of this introductory offer. Twenty-four 3-ounce cans for \$23.56. (Equivalent to \$42.96 retail value.)

Or we'll send you one package for trial, for only \$1.50.

Send your order to Desenex Athletic Division, Wallace & Tiernan, Inc., P.O. Box 538, Rochester, New York 14603.



Cruex.™ Spray-on powder.

Selected for use by the Coaches All-America Game

