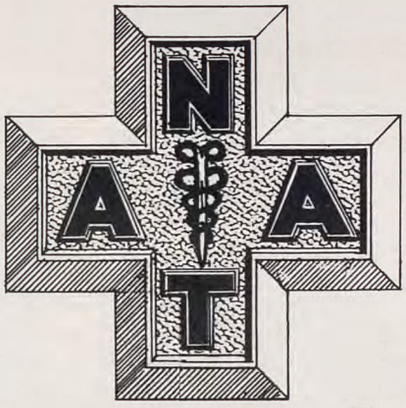
The JOURNAL

FEBRUARY 1964

OF THE

NATIONAL ATHLETIC TRAINERS ASSOCIATION



15th ANNUAL MEETING

PALO ALTO, CALIFORNIA, JUNE 7, 8, 9, 10, 1964

Cramer of GARDNER, KANSAS DINE-A-PAK®

Charles C. Spencer, Jr.
Director of Research
The Cramer Chemical Company

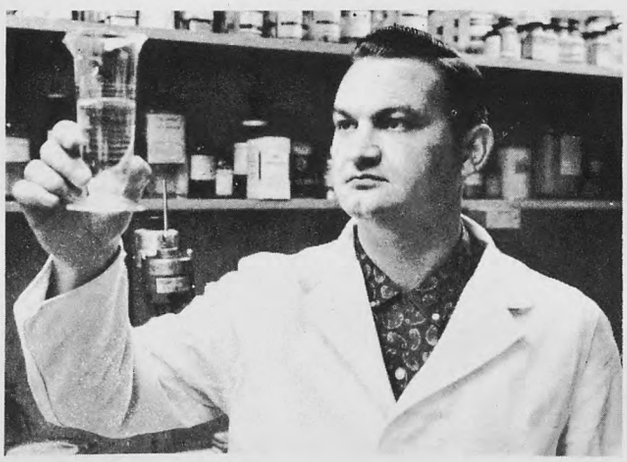
For over two years, Cramers have been concerned with the nutritional requirements and pre-game meals of athletes. Several nutrition experts claim a 200-pound athlete will require more than 4500 calories a day in order to maintain his physical condition during the season. According to the article, "Athletics and Nutrition," in the September, 1959, **American Journal of Surgery,** pages 343-352, an average-sized young male athlete will require about 72 calories per hour for his basal metabolic requirements, and an additional 3.5 to 10.6 calories per minute while in active competition. If the athlete participated in the full 60 minutes of a college football game, the maximum caloric requirement would be 708 calories. For a 48-minute high school game, the maximum would be 580.8 calories.

On game days, the calorie intake is often reduced before the game. This calorie reduction is due to such factors as: low calorie pre-game meals, and the elimination of one meal. Pre-game tension interrupts the normal digestive process, and a solid meal may still remain in the stomach at game time, causing stomach cramps, nausea and occasional vomiting. Some athletes may even be too nervous to eat.

Cramers' goal was to develop a meal to provide as many calories as possible, that could be consumed as close as possible to game time, and one that would eliminate the problems associated with a solid meal. "Dine-A-Pak" is our answer.

The "Dine-A-Pak" athletic meal, provides 650 calories that can be consumed as close as one hour to game time, to provide energy in a convenient, easily digested form.

"Dine-A-Pak" is a combination of 12.5 ounces of a delicious chocolate drink, with four special, old-fashioned, chewy oatmeal cookies. A complete meal for highly active people for complete nutritional support. The combination of liquid and cookies supplies 24 grams protein, 26 grams fat, and 80 grams carbohydrate. The bulk of the energy is provided by the carbohydrates, which are quickly available to the body as an energy source. "Dine-A-Pak" is vitamin fortified, and each meal contains at least one-third of the daily adult needs of all nutrients for which requirements have been established.



Why the cookies? In one of our trial programs involving more than 300 athletes at Baylor University, Baker University, University of New Mexico, Indiana State University, Lawrence, Kansas, High School, and the New Mexico High School All-Star Games, it was determined that the average amount of liquid an athlete could comfortably consume, was approximately 13 ounces. Since this amount limited the calorie intake to a much lower level than what we thought was necessary, a special concentrated cookie was added, in order to increase the calorie intake and still hold the liquid required to 12.5 ounces.

We have found the cookies to be of great value in increasing the calories provided by the meal, and maintaining the liquid at low comfortable volume. They help eliminate the problem of gas, sometimes associated with a straight liquid meal, and they also provide a small amount of bulk food, that greatly increases meal satisfaction over that of a liquid meal alone.

"Dine-A-Pak" is a convenient, ready-to-use meal. It may be served chilled, poured over ice, or warmed to serve as a hot drink. Refrigeration is not required until the can is opened.

We recommend that "Dine-A-Pak" be consumed between one and two hours before the event. It digests easily, empties quickly from the stomach, satisfies the appetite and maintains a well-fed feeling for hours while providing sound nutrition in a convenient, ready-to-use form. As a special dietary food for complete nutritional support, it can be used to replace meals that are missed or as a pre-game meal for athletes.

Try a "Dine-A-Pak" meal. Let it prove to you what it can do.

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

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TRENDS IN ATHLETIC TRAINING AND PROBLEMS OF THE FUTURE

Fred L. Allman, Jr., M.D.

Presented to
National Athletic Trainers Association Meeting
June 11, 1963

Members of the National Athletic Trainers Association and Guests:

I would like to thank you for giving me this opportunity to participate on your program. I consider my presence here a threefold pleasure. First, because during the past several years I have been aware of the very fine work that is being done by your organization to fulfill its established purpose to advance, encourage and improve the athletic training profession in all its phases, and to promote a better working relationship among those interested in the problem of training. Secondly, I'm happy to be able to renew many old friendships and to make new friends with people whose names have been familiar to me for many years; and thirdly, my presence here provides me with the opportunity to openly converse with people whose interests are similar to my own regarding the development of young people into healthy useful citizens through participation in competitive athletics.

The subject that I have selected was chosen because I felt that it would be unnecessary for me to talk to you regarding the particular treatment of a specific injury, when most of you have experienced, well qualified orthopedists either as your team physician or as a consultant to your team physician. Further, you have had the benefit of hearing from more experienced and more capable orthopedists than I during the program yesterday and earlier today.

I do not mean to imply, however, that there is no need for improvement regarding the prevention and treatment of athletic injuries. Although much progress has been made, through efforts by your organization, and the work of Drs. Thorndike, Quigley, O'Donoghue, Slocum, Ryan, Shaffer, Brashear, Lannin, Brewer and many others, much still remains to be done. There are still too many physicians, especially those treating high school athletes, who can't distinguish between a sprain and a strain, between a complete ligament tear and a partial tear, between a sprained wrist and a fracture of the carpal navicular, or between an ankle with diastasis and one without diastasis. There are still too many physicians who feel that if nothing is done, but activity is limited, then everything will heal normally. There are still too many coaches who think withholding fluids during hot weather improves conditioning, and that if a two hour workout is good, then a four hour workout is twice as good. There are still too many teams where the physician does not make the decision as to the playability of the injured and still other teams where the trainer is everything from waterboy to surgeon. There are schools that have no financial plan to care for the injured and too few schools keep adequate records of their injuries and the mechanism of the injury.

There is an old saying in medicine that nothing is new, and that if you look far enough back into the literature you will find that someone else has used the same method or treatment before. This saying probably applies to athletic training also. Many of the practices utilized in modern athletic training are derived from knowledge obtained by our primitive ancestors in their effort to survive. The law of the jungle, or the survival of the fittest, led early man to develop physical skill. Fitness was a necessity for survival and those who were unwilling to "pay the price" were soon eliminated.

Although there is probably nothing new in athletic training, there are trends from time to time that seem to predominate during a particular era.

There can be no question that we are presently living in an era of accomplishment. It was recently stated that the total sum of man's knowledge has doubled in the last ten years and it is estimated that it may well double again in the next five. In a recent bulletin, the New York Academy of Sciences boasted that of all those who fit the definition of scientist born on earth since man's beginning, approximately half are alive today—and working. Also, these men have in their hands the power to exert a greater influence on human history than all past generations of mankind.

In the field of athletics, a quick glance at the record book is evidence enough that we are truly living in an era of accomplishment.

In swimming, Johnny Weismueller held all the world's swimming records up to and including the 400 meter mark for many years—the 100 yard record standing for seventeen years. Yet today, of twenty-nine world records in swimming for men and women, none is older than February, 1962 and most are less than one year.

At the recent National A.A.U. Indoor Swimming Meet in New Haven, Connecticut, twelve U. S. records tumbled. Roy Saari established himself as the world's best middle distance swimmer, but was pushed by a sixteen year old named Don Scholander in the 500 yard freestyle. Scholander won the 200 yard freestyle.

Donna de Varona established three American marks during competition at the Pacific Association A.A.U. 1963 Swimming Championships. She notched records in the 100 yard backstroke, 200 yard individual medley and the 400 yard individual medley.

Our 1960 Olympic medal winners in swimming have found their competition at home very sharp and we can be assured that there will be numerous young new faces as our teams go to Tokyo in 1964.

In track, you must read the sports pages daily, for records are falling faster than they can be recorded by the press.

C. K. Yang, senior student at U.C.I.A., recently established a new world's record in the decathlon with 9,121 points. Two weeks ago Adolph Plummer set a new world's record in the 440 yard dash with a time of 44.9 seconds, breaking the previous record of 45.7 set in 1958 by Glen Davis. Brian Sternberg vaulted 16 ft. 8 in., Al Oerter threw the discus 205 ft. 5½ in., and Gary Gubner has lifted a total of 1,078¾ lbs. in his three lifts and thrown the shot 63 ft. 6½ in.

Recently the Arizona State Mile Relay team set a new world's record with a 3 minute 4.5 second effort, and the point has been reached where six men in the same race can all be under 4 minutes in the mile run without creating much excitement. Since Roger Bannister ran the first less than 4 minute mile on May 6, 1954, over two dozen others have done likewise. The coach of the present record holder, Peter Snell, predicts that Snell will run a 3 minute 40 second mile sometime in the future. Over thirty years ago, Glen Cunningham predicted that someone would run a less than four minute mile and most of the track coaches of the time laughed at him.

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TRENDS IN ATHLETIC TRAINING (continued)

In football, has there ever been a better team than the Green Bay Packers of 1961-62? Perhaps there has been a better team, but there is a good argument to the contrary.

In baseball the present day players Mantle, Maris, Mays, Matthews, Musial, Spahn, Podres, Ford, and Berra must be on an equal with Wagner, Mathewson, McGraw, Cobb, Chance, Ruth, Hornsby, Gehrig, Lazzeri, Alexander, Dean, Fox, Feller, and DiMaggio.

With new records being established daily in all sports, to what can we attribute the successful accomplishments of this era?

The improvement probably reflects better techniques of conditioning and the realization that improvement is possible.

Aside from improved coaching and better diagnosis and treatment of injuries, the better techniques of conditioning are probably related to the utilization of three activities in the conditioning program: (1) weight training, (2) interval and endurance training, (3) a year-around conditioning program.

I. Weight Training:

Until recently the regular use of weights by athletes was taboo. Most coaches feared that the use of weights would make their athletes "muscle bound" and thereby sacrifice mobility and skill. It is known, however, that any competing athlete can improve his performance by an increase in strength; and progressive resistive exercises utilizing weight training, is one of the best methods to gain strength.

Dr. Robert Brashear, one of the guiding lights behind the formation of the N.A.T.A., stated in his booklet on "Athletic Injuries" that, "whether one is trying to rebuild a weakened muscle post-operatively, or whether one is trying to develop a healthy athlete's muscles, he must strain his muscles to the ultimate if he is to build muscle mass. We develop grace and agility by handball and boxing, by fancy diving, by the trampoline, and even by doing the jitterbug. We develop endurance by running up and down the stadium steps, but we never develop muscle mass except by strain."

Muscle development is obtained by loading the muscles and pressing activity beyond the threshold of fatigue.

Much of the credit for recognition that weight training could help athletes in all sports must be given to Bob Hoffman, who for many years stood almost lone in the belief that weight training would improve athletic performance.

Credit should also be given to Hoffman for the current interest which is being shown in isometric exercises, for it was Hoffman who took an old concept and made practical application to individual situations in which strength was a prime factor. Jay Bender has provided a method of multiple angle testing which can accurately determine a point of weakness in a range of motion and thereby isolate a muscle for therapy.

Weight training should be started at an early age and continued throughout the years of competition and even beyond. The ideal program includes both isometric and isotonic exercises and the requirements will vary according to age and activity. Each program must be individualized.

The day is near when every athlete will include weight training in his conditioning program if he expects to excel.

II. Interval and Endurance Training:

Interval training is overloading so that a workout will produce as many states of high oxygen debt and allied fatigue effects as time and the athlete's fitness allows.

Endurance training is activity in which the body is pushed to near capacity.

With improved competition, interval training will become progressively more important because of the necessity to be well conditioned in spite of limited time. In such a case the intensity rather than the distance can be increased.

The question arises as to how intensive interval training may become without being injurious. There are two main limiting factors in interval training: (1) time and (2) recuperative ability. Following each muscular contraction, recovery must occur. The same is true following each workout. If the organism fails to recover prior to being loaded further, then eventually fatigue will occur. It should also be noted, however, that rest, while useful following work, can be debilitating without work.

There is still much to be learned concerning fatigue and the reasons for such a wide variation of response among individuals exposed to the same conditioning program.

Roger Bannister has stated that, "the human body is centuries in advance of the physiologist and can perform an integration of heart, lungs, and muscles too complex for the scientist to analyze."

III. Year-Around Conditioning Program:

The third reason why there have been so many new records set in the sports world has been because of the realization that to achieve the highest level of conditioning requires many months of well regulated activity. We know that it is a myth to think we can condition an athlete for a given sport by a three week pre-seasonal conditioning program.

Multisports participation, particularly at a young age has also shown to be of great value. The recent success of the Soviet athletes in the Olympics has been attributed in part to the fact that they learned that specialized athletic performance rises highest when founded upon a broad base of multisports training. Youngsters in Russia are encouraged to engage in many sports and are also urged to make full use of strength training equipment.

Conditioning for top performance requires a year-around program and this program must be attractive enough to hold the interest of the athlete all year.

Although I promised to avoid going into specifics regarding the prevention and treatment of athletic injuries, there are several recent developments that have made a real contribution to this era of sports accomplishment. One of these is the use of the fitted, flexible mouthpiece and another is the early surgical repair of severe ligamentous injuries to the knee.

Fitted Flexible Mouthpieces: Following a pilot study in two Philadelphia high schools in 1957, in which wearers of mouthpieces suffered no tooth injuries and unprotected players suffered 21 tooth injuries; and the knowledge that a 1950 survey of 62 colleges revealed that among the 4,000 players participating in football that year, 733 teeth were either chipped or displaced by trauma, (that same year the L.S.U. football squad of 52 men experienced fracturing or loss of 65 teeth); and further experience based upon use of mouthpieces at Ohio State University, North Carolina State University, the University of Georgia, and other colleges; and the marked reduction in the number of dental injuries which occurred when the mouthpieces

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TRENDS IN ATHLETIC TRAINING (continued)

were used, prompted the National Federation of State High School Athletic Associations, the National Association of Intercollegiate Athletics, and the National Junior College Athletic Association in 1962 to make the use of fitted flexible mouthpieces mandatory for all of their football players. This affected some 643,000 football players. There is no question that the use of the mouthpiece has markedly reduced the number of fractured teeth, the number of fractures to the mandible and maxilla, and even more important they have decreased the incidence of that type of brain concussion which results from the impaction of the mandible against the base of the skull.

Each of us concerned with the care of athletes should encourage the N.C.A.A. to adopt a rule making fitted flexible mouthpieces mandatory for all of the football players in its member schools.

Early Surgical Repair of Complete Ligamentous Tears of the Knee: Dr. Don O'Donoghue, Orthopaedic consultant for the University of Oklahoma athletic teams, has long been an advocate for the early surgical repair of complete tears of the collateral and cruciate ligaments of the knee. He feels that when one can demonstrate complete severence of any single ligament or of any combination of ligaments of the knee, then surgical repair is mandatory and all ligaments torn should be repaired and the repair should be done at the earliest possible time. Due to Dr. O'Donoghue's unusual ability as a teacher, and his major interest in athletes, he has been able to educate most of the physicians who are engaged in sports medicine in these principles, and, therefore, there should be fewer cripples seen in later life due to the unoperated or late operated football knee. We will say more later about the knee problem.

What Lies Ahead? This depends largely upon which way we look. If we look to the left there are still too many dark clouds; if, however, we look to the right, there is some sunshine.

First, let's look to the left at some of the unsolved problems. A total of 26 players died of direct and indirect causes last season (1962). Although this represents a 29.7% decline over the previous year, five of the seven indirect deaths were attributed to heat stroke and nearly 80% of the 19 deaths directly attributed to the game were due to head and neck injuries.

It is almost inconceivable that five deaths could occur in a single year as the result of heat stroke when so much has been said and written lately concerning this subject. Only last year the N.C.A.A. issued a report by its Committee on Sports Injuries and Safety, in which the following points regarding athletic activity in hot weather were stressed:

1. Require a careful medical history and checkup prior to the beginning of practice.
2. Schedule workouts during cooler morning and early evening hours in hot weather.
3. Acclimatize athletes to hot weather activity by carefully graduated practice schedules.
4. Provide rest periods of 15-30 minutes during workouts of an hour or more in hot weather.
5. Furnish *extra salt* and *water*.
6. Watch athletes carefully for signs of trouble, particularly the determined athlete who may not report discomfort.
7. Remember that temperature and humidity, not the sun, are the important factors; heat exhaustion and heat stroke can occur in the shade.

I'm happy to see that you have given time on your program for a panel discussion of this very simple but very serious problem.

Head and Neck Injuries: The controversy concerning helmet and face guards still rages, and, as yet no answer appears in sight. Regardless of the type of helmet used, however, it should be fitted to the individual (as should all equipment), and should be worn at all times. The practice of using the head as a "spear," a "post," or "battering ram" should be discouraged and daily resistive exercises to the neck muscles should be encouraged. Any head or neck injury should be considered serious until proven otherwise and must be completely evaluated prior to further participation.

Knee Injuries: In spite of the outstanding work done by Dr. ODonoghue, and others, to improve the diagnosis and treatment of knee injuries—injuries to the knee are by far the most frequent disabling injury in football. Head and neck injuries are more frequently fatal, but the knee injuries are the most frequently disabling. The medial collateral ligament is the most frequent structure involved and must be carefully evaluated so that the extent of the injury can be made known immediately and the proper treatment instituted. The knee problem is still one of the biggest problems facing the athletic trainer, the physician, the coach, and most of all the athlete himself. In addition to resistive exercises for the quadriceps and hamstring muscles, low cleats and good body balance, further research is needed to help solve the knee problem.

Nutrition: Since two Greek athletes deviated from the chiefly vegetarian diet to one of meat in large quantities in the 5th Century, B.C., the question of proper diet for the athlete has been debated. Many claims have been made for "special diets" in the increased performance of athletes, and much has been written concerning the proper "pre-game meal." To further complicate matters, Dr. Tom Cureton has suggested that the physical work of training may gradually exhaust certain critical nutritional ingredients in the athlete and that *staleness* may thus result with symptoms of fatigue, lassitude, and indisposition to work hard.

Of late much has been written both pro and con concerning a liquid pre-game meal. Every indication is that there *is* a place for such a material, especially for swimmers and track men who must compete in numerous events, over a prolonged period, in which there is no interval greater than one or two hours between events.

I was amused at the remarks made recently by Senan Castillo, coach of the Arizona State world record mile relay team when he said, "I worked the boys very hard, stayed up nights giving them bed checks, watched their diets, but I found out in the last few years they run just about as good on hamburgers as anything else."

More study is needed to help clarify the nutritional needs of our athletes.

Other Problems: A survey conducted in 1961 by the Committee on the Medical Aspects of Sports of the American Medical Association revealed other areas in which improvement is needed. It was noted that with the exception of football players, many college athletes may never receive any specific evaluation of their physical ability to participate in a college athletic program. At least four colleges (and many high schools) apparently conduct athletic programs without providing any medical supervision at all; and there was no requirement for an annual physical examination for all students at approximately half of the colleges polled. It was further noted that the average

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TRENDS IN ATHLETIC TRAINING (continued)

college athlete is unlikely to have a routine physical examination after his pre-admission examination and the pre-admission examination is likely to have been performed by his personal physician, who may not be particularly oriented toward athletics. More alarming, however, is the fact that of the 533 institutions which responded to the questionnaire, only 375 provide complete medical supervision of athletes and *at 19 institutions a physician did not have complete and final authority for determining the ability of an athlete to participate at any given time.* In 88 schools the physician played no role in the planning of conditioning and rehabilitation programs, and in 291 institutions he had no role in the supervision of the training table or diet.

It is also distressing to learn that only 85% of the N.C.A.A. schools have a trainer, and of these only 65% are full time.

In a questionnaire sent by Mel Blickenstaff to high school trainers who were members of the N.A.T.A., over half of the 59 who replied had no liability insurance to protect them.

Other surveys have revealed that while a very high percentage of athletic trainers hold college degrees there are only about 10% who have physical therapy certificates, a knowledge which is invaluable in athletic training.

We should also be aware that during an era in which we have reached never before dreamed of heights in physical prowess, we have reached new depths in physical fitness in the general population. At the present time we are engaged with the Soviet Union in a race to the moon. We are quite naturally concerned that our children will be given a good education—one that is basically sound with reading, writing, arithmetic, and equally sound in science. This is as it should be, however, what a tragic personal and economic loss to a business and to our nation to have an outstanding young executive or scientist die with a coronary thrombosis at the age of 35 or 40. Thirty years of preparation halted abruptly because no one took time to tell him the importance of physical fitness or proper utilization of his leisure time. Autopsies of supposedly healthy men killed in the Korean war revealed that 77% had deposits of cholesterol (considered by many to be related to heart disease). The average age of these men was 22.1 years.

Records of more than 200,000 workers on American railroads were studied. Death rates of clerks, switchmen, and section hands were compared. Deaths due to arteriosclerotic heart disease were distributed as follows:

5.7/1000 for desk-bound clerks
3.9/1000 for medium activity switchmen
2.8/1000 for the section men, whose jobs are the most strenuous

A study in London revealed that the conductors who had to climb the stairs of London's double decker buses to collect fares, had a lower coronary incidence than the most sedentary driver. It has been reported that postal routemen had fewer coronaries than telegraphers and other office workers.

The beneficial effects of physical activities on the cardiovascular system are now well known. It is only through exertion that you develop good physiological equipment and lay the groundwork for efficient, economical function and lessen the chances of getting degenerative diseases in later life.

In this great nation where we like to use superlatives to describe ourselves, 60% of our school children do not participate in a regular physical fitness program and many of the programs in the remaining 40% fall far short of a desired goal.

In schools where effective programs have been introduced, parents are often over apprehensive about physical exertion that leaves a child panting and perspiring—conditions that many mothers feel are danger signals.

It is your duty as athletic trainers, (as well as the duty of the physicians, physical educators and coaches), to see that the public is better indoctrinated to the fact that exercise is the *master conditioner for the healthy and the major therapy for the ill.*

Finally, let us look for a moment at the brighter side. In spite of all the problems facing those of us concerned with the physical well being of our nation, much progress has been made. The main source and stimulus for improvement has been through the efforts of organizations whose aims are to improve health standards and to thereby enable us to make better use of our mental and physical resources.

Your organization, The National Athletic Trainers Association, stands at the very top regarding progress which has been made to improve the quality and character of injury prevention and treatment at the intercollegiate level. Time does not permit me to go into detail concerning the many advances in athletic training which have resulted from action taken by the N.A.T.A. since its organization June 24, 1950. Your objectives, your code of

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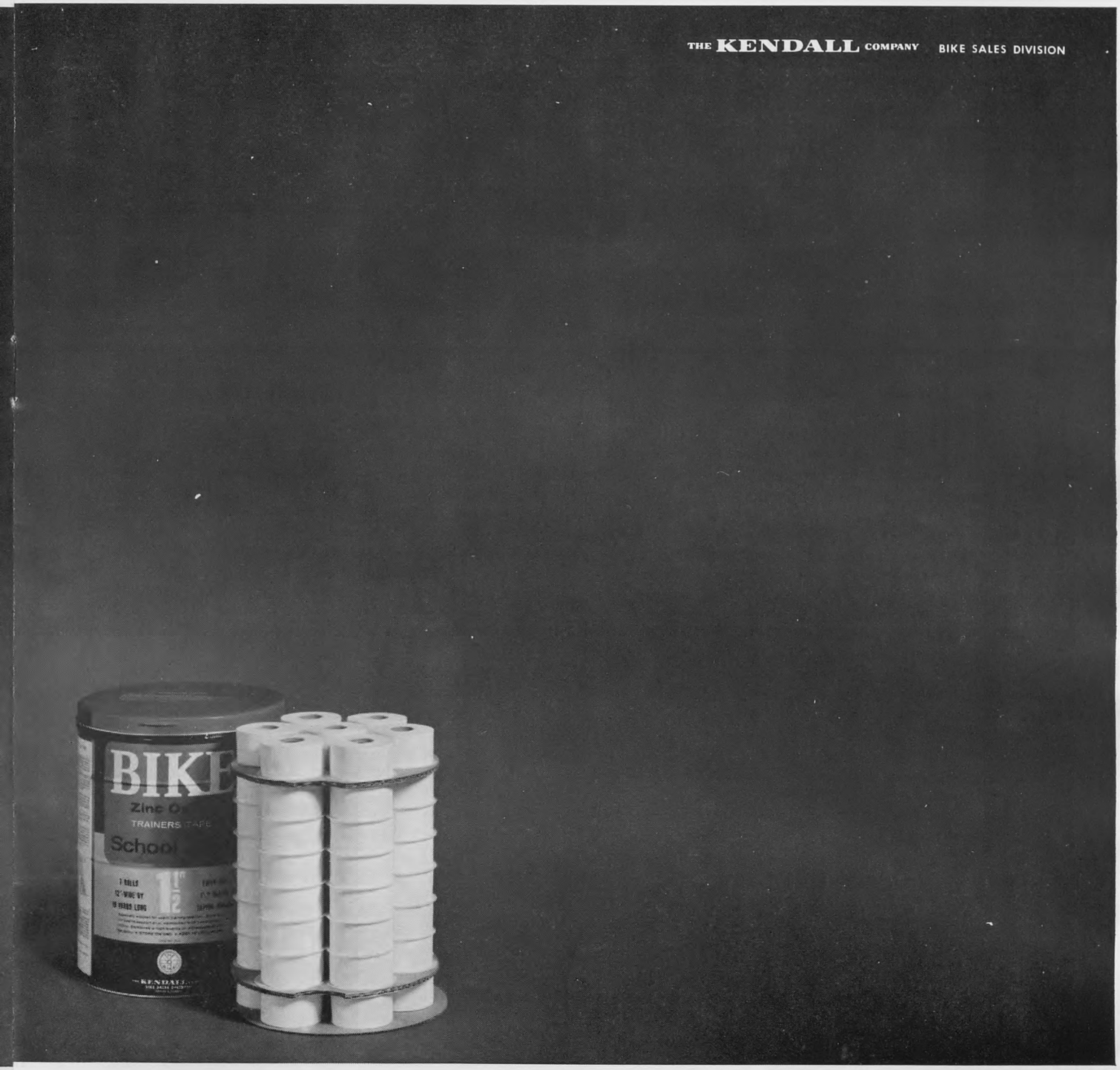
*Name of school on request.

22 men taped in 19 minutes flat!*

Here's proof-in-action that Bike School Pack tape is 18% faster and easier than old style rolls. Recently a Chicagoland high school demonstrated that taping is much faster and less expensive the Bike School Pack way. On consecutive days, the same trio of trainers taped the 22-man squad with the School Pack and with old-style rolls. The School Pack did the job 18% faster and at 7% lower cost.

Over a 12-week season, this adds up to hours of extra practice time and a $70 saving in tape.

The School Pack speed story starts with the upright "stack-rack," which keeps fifty-six 15-yard rolls at your finger-tips. Each School Pack contains as much tape as you get in eleven old-style rolls—and fewer containers to handle means more speed. Each roll in the School Pack contains 15 yards of tape, enough to tape two ankles. Old-style rolls con-



tain 10 yards, making it necessary to handle two rolls to tape one pair of ankles. The Bike two-ankle roll also avoids wasteful left-overs. The metal canister helps Bike tape work easier and faster too, because it protects against tape bruising and moisture damage. And each canister has the famous "New Bike Speed-Method for Taping Ankles" on the label. Bike School Pack Tape comes in 3 grades: Formula #87, Zinc Oxide and General Purpose.

BIKE®

ANKLE EXERCISE PROGRAM

By Sayers J. Miller, Jr.

A. *First Stage* (Check range of motion)
   1. *Flexion*—flex foot as far as possible, point toes upward.
   2. *Extension*—extend foot as far as possible, point toes downward.
   3. *Inversion*—turn soles of feet inwards.
   4. *Eversion*—turn soles of feet outward.

B. If the above exercises can be done in full range of motion and without pain, do the following exercises:
   1. *Foot Circles*—foot circumscribes a small circle. Ball of foot down first, then in, up, and finally out.
   2. *Alphabet*—sitting on table with knee straight and only ankle extended over the end of the table print in capital letters the entire alphabet with your foot.

C. If the above exercises can be done in full range of motion and without pain, do the following exercises:
   1. *Towel Exercise*—sitting on a chair with foot on a towel pull towel up under foot with toes. After completing the above part successfully place a weight on the other end of the towel to offer resistance.
   2. *Pick-Up Exercise*—pick up marbles, a small piece of sponge rubber, or partly used gauze roller bandage. Alternate placing the object in the hand opposite knee of good leg and in the hand behind buttocks of injured leg.
   3. *Toe Rises*—stand with feet one foot apart and toeing in. Rise on toes as high as possible without pain. Also repeat this exercise with toes pointed straight ahead and pointed out.

D. If the above exercises can be done in full range of motion and without pain, do the following exercises:
   1. Repeat range of motion exercises with the trainer giving resistance to the exercises with his hands, or 1A. Give resistance exercises by the use of an Elgin or Logan Ankle Exerciser.
   2. *Hopping Exercise*—first standing on the good leg hop as high as possible. Then repeat on the injured leg.
   3. Also will use the inversion or eversion tread board for exercise at this time.

E. When the athlete can perform the hopping exercise equally as well as on his good leg and without pain, do the following exercises:
   1. Active jogging and walking with ankle strapped.
      a. I. Walk 25 yards; jog 25 yards.
         II. Walk 25 yards; jog 50 yards.
         III. Walk 25 yards; jog 75 yards.

   (NOTE: Anytime the athlete limps, stop all running.)
      b. *Straight ahead*—repeat above walk and jog exercise except at ½ speed.
      c. *Straight ahead*—repeat above walk and jog exercise except at ¾ speed.
      d. *Straight ahead*—repeat previous exercises except at full speed.
   2. When the athlete can sprint at full speed and without a limp, then have him run circles both clockwise and counter clockwise. Start with large circles and work down in size of diameter.
   3. When the athlete can run the circles at full speed without a limp and without pain, then have him run figure eights.
   4. When the athlete can run figure eights at full speed without a limp and without pain, then have him run a zig-zag course the length of the football field.
   5. Finally the last step is to test the athlete on right angle quick cuts both to the right and left. When he can do this, he is ready for competition and practice.

All exercises should be repeated at least ten or more times daily.

When the athlete starts jogging with his ankle strapped, he can do all previous exercises at home and on his own with the trainer checking twice a week on these exercises.

TRENDS IN ATHLETIC TRAINING (continued)

ethics, your committee on Professional Advancement, your affiliation with the National Collegiate Athletic Association and with the United States Olympic Committee, and your active participation with the medical profession at meetings all over the country, regarding the medical aspects of sports, have all served to prove that you are dedicated to rendering service to humanity.

Other organizations that must be mentioned because of the outstanding work that they have done in the Sports-Medicine field are: The American College of Sports Medicine, The Committee on the Medical Aspects of Sports of the American Medical Association; and the Coach of the Year Coaching Clinics sponsored by the N.C.A.A.

In conclusion I would like to say something about your responsibility as an athletic trainer. The Rangers of the United States Army are among the best conditioned, best trained, and best equipped fighting men in the world. On the armband of each Ranger is the motto, "Follow Me." Each man is expected to set an example which at all times will be an inspiration to those who serve with him. You may never have seen it, but you too wear an arm band that says "Follow Me." No one else has an opportunity to mold the bodies, minds, and ideals of our youth as do the coaches and athletic trainers. Their contact with the boy is more intimate and more prolonged than that of anyone else outside the immediate family.

There are indications that in the recent past we have failed in our efforts to create the proper image of our youth. During the Korean War there were 7,000 Americans captured. Over 97% of these prisoners endured no brutalities at the hands of the Chinese Communists and housing and food, while not good by our standards, were considered adequate to support life—yet *four out of every ten Americans captured during that war died in captivity.* Four out of every ten died without being starved, beaten, overexposed, or executed. One out of every ten men admittedly informed upon his fellow prisoners about something, and one out of six men held in Korea did consistently and reliably throughout their period of captivity, deliberately assist the enemy. Planned organization and resistance never occurred in these camps.

We have a responsibility to our youth to see that they grow up to have a sincere feeling for their fellow man, a devout belief in God, a pride in our country, and the self respect to try to do their best at all times. I feel confident that those of you sitting here today will provide the necessary leadership, discipline, character, and love to make our youth today our moral and physical fortress of tomorrow.

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OUR 1964 OLYMPIC TRAINERS

Delmer Brown is in his eighth season at East Texas State as trainer for all sports and head track coach. He is a registered physical therapist and a charter member of the National Training Association. Before coming to East Texas State in 1953 he had been a high school coach at Breckenridge, Port Arthur and Goose Creek, a trainer for the Pittsburgh Pirates one season and trainer at Baylor University from 1946 to 1953.

After coaching at East Texas State for two years, he served as track coach and trainer at Texas Tech from 1955 to 1958 before returning to East Texas State. His track teams won Lone Star conference titles in 1955, 1959, 1960 and finished second in 1954 and third in 1961, 1962 and 1963.

A track great at North Texas State in the late thirties, Brown at one time held school records in the 100, 220, 440 and broad jump and ran on a medley team that set a world record. He was named to the All-American track teams in both 1937 and 1938. He held the Lone Star conference 220 record at 20.7 seconds until his freshman sprinter R. L. Lasater erased it at the loop meet in 1962 with a time of 20.5 seconds.

Coach Brown is an active member and former officer in the Lions Club and is a thirty-second degree Mason and a Shriner.

The Browns have five children, Karen 21, now married and teaching in El Paso; Bobby 20, in college at ETSC; Danny, 18, in high school; Del 9; and Christy 5.

TRACK COACH JIM EMMERICH

Jim Emmerich begins his fourteenth season of a highly successful career as head coach of the South Dakota State College track teams. Running in 12 North Central Conference championship meets, teams coached by Emmerich have won the title nine times, and finished second on three occasions.

In the fall of 1956, Emmerich received national recognition when he was selected as one of the eight trainers to accompany the U. S. Olympic team to Melbourne, Australia. He was honored again in 1959 when he was chosen head trainer for the USA Pan-American team in the III Pan-American games at Chicago.

Emmerich's 1953 track and field team brought home the first national championship won by a State College athletic team—the NAIA title. Last fall Emmerich's cross-country squad captured the limelight by winning the NCAA College Division championship.

Emmerich was graduated from State College in 1940, and was known better for his football exploits than his track prowess. He won three grid letters as a guard, was co-captain of the 1939 championship team and was picked for the all-conference team and Williamson's Little All-American squad. He also won a letter in track and field as a weight man in 1940.

Joining the State College coaching staff in the spring of 1941, Emmerich served as freshman football and freshman basketball coach. He entered the army for a period of 42 months the following year.

He served as track coach at Shattuck Military Academy, Faribault, Minn., during two years of his service and spent the remainder of the time in the physical conditioning program of the U. S. Army.

The track mentor is an associate professor of physical education.

Emmerich's assignments since leaving SDS:

1. American Specialists program—assignment to Morocco, Finland, Norway, Sweden—1962.
2. Trainer National AAU Men's Track and Field Meet, 1962 and 1963. Trainer, Women's National AAU Track and Field Meet, 1962.
3. Trainer NAIA All-Stars vs. Russian National Team, (basketball), Fall 1962.
4. Elected to NAIA Helms Hall Track and Field Hall of Fame, 1963.
5. Trainer USA Men's and Women's Track and Field Teams Meets, vs. Russia, Poland, West Germany, and England, 1963.
6. Trainer USA Ice Hockey pre-Olympic preparations, 1963-1964.

BOOK REVIEWS

Athletic Injuries

In view of the current emphasis on physical fitness and participation in sports, two recent books on athletic injuries are indeed timely. Since the medical care of the athlete is the main concern of both books, some similarities are expected and noted. However, their dissimilarities are more obvious. This is because they were written primarily for different audiences.

Athletic Injuries by Drs. Lynn O. Litton and Leonard F. Peltier is intended chiefly for the small-town physician who does not have at his beck and call immediate consultative help from orthopedic or general surgeons or the facilities of a large hospital.

This precise, informative book is excellently organized. General considerations of trauma and its by-products are reviewed. Athletic injuries and their treatment are discussed, starting cephalad and going caudad. Included is a chapter on physical therapy, with an explanation of isotonic and isometric muscular contractions.

Great emphasis is placed on the making of a proper diagnosis before definitive therapy is started. The anatomy of the region is reviewed and the mechanism of the injury is described. The reader is able to visualize the anatomy as it is distorted by the trauma. He is also able to pinpoint the tissues that have been injured and plan treatment accordingly. The authors stress repeatedly that immediate application of ice packs and compression dressings for 24 to 48 hours reduces local swelling and hemorrhage, leading to speedier and maximal recovery with definitive therapy.

The authors have clarified the obscure causes of elbow pain by calling attention to the slight medial and lateral movements of the ulna at the elbow joint. These are little known because the olecranon does not seem to be suited for these motions. However, the javelin thrower's elbow is a clincal example of pain and tenderness along the medial side of the elbow due to pressure of the olecranon medially on the joint. This occurs when the forearm pronates sharply to prevent the whip of the javelin.

Although J. V. Cerney's book, also titled *Athletic Injuries,* is packed with emergency first aid knowhow, the author's educational qualifications are conspicuously absent. Since the language of the text is like that heard in the training room, I infer that Cerney has written this book primarily for coaches and trainers. His dissertations on psychology, public health, dermatology, general medicine and surgery shouldn't be taken too seriously. Much material in this book is related to chiropractic and to podiatry.

I do not recommend the book for the team physician who is usually a general practitioner and has little or no time for sustained reading. He will become lost in a maze of details. The confusion is compounded because of the variety of methods noted in taping and bandaging.

On the other hand, some of the training-room language used in Cerney's book might well be adopted by the medical profession. In many cases, it is more meaningful to the patient, the trainer and the coach. Unfortunately, there are a number of glaring technical errors but, considering the vastness of the subjects covered, these are minimal.

Although both books advocate the use of physical ther-

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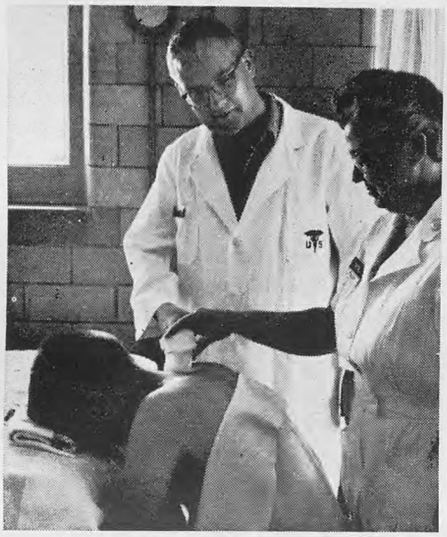
ICE MASSAGE

It is axioamtic in medicine that if many different treatments for a single condition are listed in the textbooks, none of them can be much good. Dozens are listed for the pain and disability in muscles and points that commonly result from everyday injuries. They include drugs, heat, cold, rest, exercise, etc. Lieut. Colonel Arthur E. Grant, chief of physical medicine at Brooke Army General Hospital in Texas, was aware of all the possibilities because he was responsible for thousands of G.I.s who kept getting themselves banged up. He wanted something more effective than traditional medicine.

Dr. Grant had noted, as has many another TV sports fan, that athletic trainers seem to get good results with a cooling ethyl chloride spray. And he knew about applying hot-water bottles filled with ice cubes. But if a little cold is good, Dr. Grant reasoned, deeper chilling might somehow ease the pain and help the accident patient get his muscles and joints working sooner. Dr. Grant was certain of one thing at least: the longer a muscle or joint is immobilized by pain, the harder it is to get it working again.



DR. GRANT DIRECTING ICE MASSAGE

Dr. Grant's team of physiatrists hit upon ice massage as the way to induce a deep chill. As they developed their technique, the medics began to use half-pound chunks of ice, frozen in cans, held in a washcloth. Patients complained of a burning sensation, then of an ache, but finally they reported a blessed numbness and easing of pain. If the injury was in a part of an arm or leg that could be dipped in water, it was dunked, then ice cubes were dropped into the water until the cycle of discomfort ended in numbness.

Among the first 1,000 patients—young G.I.s with fresh injuries—the deeper-chill method was successful in about 90% of the cases. Dr. Grant extended the method to 7,000 soldiers and ex-soldiers of all ages, and their wives, now reports that it has worked well in more than 75% of such patients.

Ice massage, Dr. Grant points out, should not be tried in such joint disorders as rheumatoid arthritis, which are known to be eased by heat and aggravated by cold. But for routine strains, sprains, bruises and Charley horses, he finds chilling to the point of numbness the most effective treatment yet devised. And even though patients may complain at first of its discomfort, they usually feel so much better after the treatment that they go home and do it for themselves.—*Reprint from Time, September 27, 1963.*

BOOK REVIEWS (continued)

apy, Drs. Litton and Peltier practically ignore ultrasound in the treatment of athletic injuries. Cerney doesn't advocate it enough. I have found that, next to active exercises, ultrasound is the best single physical therapeutic method in athletic injuries requiring nonoperative treatment.

Physicians who read Cerney's book will realize that the trainer has, in fact, become the team physician's right hand. He does much of the daily, routine treatment of the injured athlete. Although trainers have long ago dispelled the old image of the training-room masseur (thanks to the efforts of Dr. S. Bilik and the National Athletic Trainers Association), they are still not "bone setters" and should not be allowed to practice this highly specialized art of manipulation. It can sometimes lead to serious injuries.

Cerney's sections on glass arms, lumbago, artificial respiration, pep pills, athletic injury prevention, muscle soreness, pulled muscles, and stitch-in-the-side make worthwhile reading for physicians.

Since people are becoming litigation conscious and hazards are inherent in athletics, more malpractice and negligence suits are being filed against physicians, coaches and trainers and more can be expected. Drs. Litton and Peltier have failed their readers by not discussing the need for detailed histories and thorough examination of athletic candidates before participation as well as adequate follow-up during and after participation. They have also omitted discussion of financial responsibilities for the care of the injured athlete. They should have noted the importance of operative permits since physicians may be dealing with adolescents who do not have the legal right to authorize operative procedures on themselves.

These authors also should have stressed the need for x-rays whenever a fracture or dislocation is suspected, however remote. They should have emphasized pre- and postreduction x-rays in the treatment of fractures and dislocations. These are consistent with sound medical practice and, if carried out, reduce the incidence of successful malpractice suits.

Cerney has covered the medicolegal precautions far better than Drs. Litton and Peltier. Cerney also advocates a copious amount of treatment—almost to the point of tender loving care. Perhaps this is what is needed to get the injured athlete back in the game at the earliest time commensurate with his own safety and well-being.

—MAX NOVICH, M.D.

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By Lynn O. Litton, M.D. and Leonard F. Peltier, M.D. Pp. 222. Price, $7.50. Little, Brown & Company, Boston, 1963.

Athletic Injuries.
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Reprinted from GP, *November, 1963,*
Volume XXVIII, Number 5

PNEUMATIC SPLINTING OF HAND INJURIES

A Preliminary Report

By Alex P. Kelly, Jr., M.D. and
Joseph L. Fox, M.D.. Detroit

Reprinted from the Archives of Environmental Health
September 1963, Vol. 7, pp. 282-285

The concept of immobilization through pressure in the treatment of burns and wounds has had numerous advocates in the last five decades. Blair[1] in 1924 advocated pressure for the prevention of stasis, in the injured part, and its subsequent organization. Smith[2] utilized pressure in the form of air-filled bladders to immobilize skin grafts. Douglas[3] in 1944 developed a clear plastic pressure cuff for graft immobilization; this permitted observation of the status of the wounds. In the same year Curry[4] reported the successful use of a pneumatic splint for fractures of the extremities. A decade later Lehman and Hay[5] combined facets of the efforts of Douglas and Curry to produce a double-walled clear plastic immobilizing dressing. From these studies the impression is gained that pressure in the range of 10 to 30 mm Hg exerts a beneficial effect beyond that of simple immobilization.

Clinical results by the use of pressure dressings of the conventional type have been good as evidenced by the work of Allen and Koch.[6,7] Perhaps the occlusive aspect of such a method has been underrated. It is difficult to support the clinical impression that pressure is of value. Rhinelander[8] in a well-controlled study of thermal trauma in dogs failed to find significant benefit from pressure.

The edema engendered by dependency and continued movement of the injured parts should be avoided by the use of a pressure splint. Whether or not the prevention of edema is a desirable objective is not clear in our present state of knowledge.

We became interested in the problem of pneumatic splinting through treating patients with edema of the hand after injury and surgery. We had utilized a nylon-reinforced rubber bladder with an intermittent compression pump as described by Brush and Heldt.[9] The device was effective in correcting the edema but required daily sessions at the hospital. We then had the patient utilize continuous compression at home inflating the mitten to a comfortable level. This was found to be about 30 mm of mercury with a sphygmomanometer bulb. Continuous compression was somewhat less effective than the intermittent compression pump but was considerably more attractive from the economic standpoint. We asked the manufacturer of this device if something cheaper and preferably disposable could be developed. The resultant product with minor modification is the hand splint we are using now.

The splint is a double-walled, transparent plastic tube with a slide fastener. The inner wall is 8 mil cast vinyl and the outer wall is 12 mil pinhole-free polyvinyl. A simple screw valve is inset in the outer wall for inflation. It is packaged in a sterile envelope and can be applied over an open wound. The splint cannot be autoclaved. Cold disinfectant or gas sterilization is necessary if reuse is desired. The cost is comparable to that of a well-applied compression dressing of the hand. The splint as packaged has a shelf life of a number of years, remaining sterile as long as the outer package is intact. The vinyl plastics used become tacky at around 160 F but have a powdered resin coat which should combat this tendency unless used

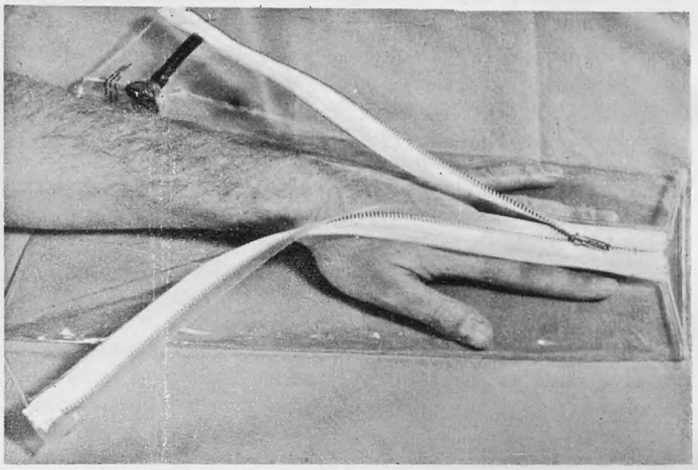

Fig 1.—Hand placed on open splint, slide fastener partially closed.

under intolerably high ambient temperatures. The lower range of temperatures shows that the plastic becomes brittle at −30 F. Splint failure has occurred in usage at −26 F.

Package directions in emergency medical or first aid equipment should be lucid and terse for rapid assimilation by the user. In testing the splint, 30 persons were asked to use the splint without direction other than those supplied by the package. The splint was applied correctly by all but one in an average time of four minutes. Two children eight and ten years of age, respectively, had no problems with the application. The greatest stumbling block appeared to be the valve mechanism. One third of the persons did not comprehend immediately the necessity of closing the screw valve, although this was plainly stated in the directions. It was not found difficult for anyone, including the children, to inflate the splint with expired air to above 30 mm/Hg. The inflation by sphygmomanometer bulb is slower but does not cloud the interior of the splint with moisture which may obscure observation of the wound.

Application of the splint is simple and engenders less discomfort than conventional bandaging. The splint is

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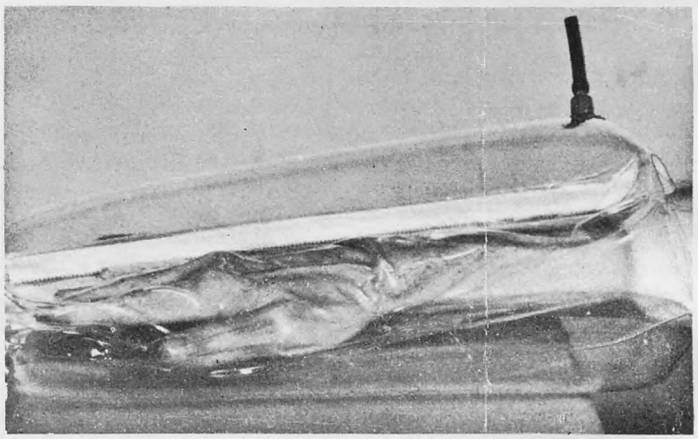

PNEUMATIC SPLINTING (continued)

removed from its sterile envelope and opened flat. The hand is placed with the fingertips one inch from the distal edge. The splint is wrapped around, closed with the slide fastener, then inflated by a sphygmomanometer bulb or expired air. The inflation is maintained by turning the screw valve. The amount of pressure utilized is that necessary to arrest hemorrhage, the limiting factor being discomfort. Pressure of 20 to 30 mm produces minimal discomfort and easily controls venous oozing. Arterial bleeding can be controlled by the addition of compresses at the site of bleeding and elevation of the injured part. If discomfort develops, a small amount of air can be released by partially opening the screw valve.

The clear plastic allows good visualization of the wound so that decisions about anesthesia and the type of operating facility needed can be made.

The visualization of the injured hand makes good positioning for roentgen studies feasible. The splint is radiolucent except for the metallic slide fastener which might obscure fractures of the small bones of the hand. The fastener should be placed away from the obvious area of damage. The current model of the splint has nylon teeth in the slide fastener to minimize inteference in roentgenography.

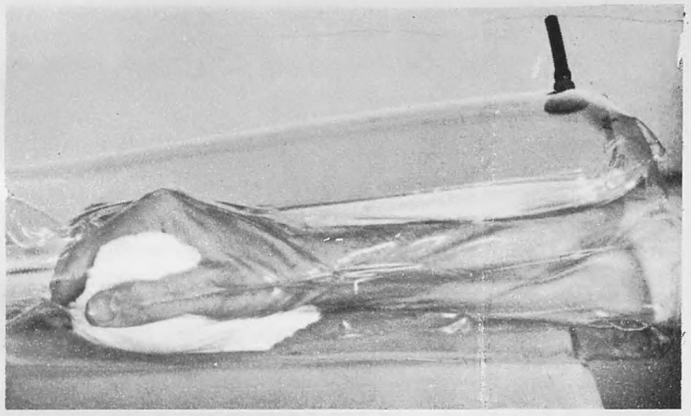

Fig 3.—Functional position obtained by placing fluffed gauze in palm.

The splint in its final form has been utilized in 11 cases of hand injury, including open fractures and fracture dislocation of the forearm, carpal and metacarpal bones, and phalanges. It has also been utilized in major soft tissue injury, such as severed tendons and nerves. The patients have ranged from 2 to 69 years. The majority of the patients had the splint applied after arrival in the hospital 20 to 60 minutes after injury.

Of the 11 patients, one complained of over-all pain which was controlled by decreasing the pressure. One patient complained of pain in the fingers as if the circulation were cut off; this necessitated removal of the splint. The slide fastener on two splints came undone and necessitated reapplication. (This type of plastic-to-plastic closure has been replaced in later models of the splint.) The movement from emergency to x-ray to operating theater was accomplished with comfort. The unwrapping and rewrapping that is common as the patient is seen by various doctors was obviated; this eliminated repeated contamination af the wound from such handling. Terminal nerve function could be tested by needle prick in the median and ulnar distribution. Bleeding was adequately controlled. Covering the splint with a wrapper or towel is advised because patients generally are not enthusiastic about seeing their wounds.

The usage of this dressing splin for burns has two major disadvantages. The desired objective in a burn is to obtain a dry surface as soon as feasible. The moisture engendered by plastic in contact with the wound defeats this objective. In the hand there is a second problem of splinting in the position of function. The plastic dressing splint makes the hand assume a flat functionless position. For these two reasons there seems to be no place for this device in burns except as an air-excluding sterile immobilizing cover for transport of the patient to medical care. In an industrial first aid station where sufficient sterile dressing materials would not be available to handle a burned extremity the plastic dressing splint with minimal pressure could be used as an excellent first aid dressing.

Summary

An excellent first aid pneumatic dressing splint can be safely and rapidly applied by personnel with minimal training. It will permit control of hemorrhage and transport to proper medical facilities without the risks associated with improperly applied conventional splints or tourniquets. It should prove a worthwhile addition to equipment for industrial first aid stations, ambulance services, and practitioners' offices. The extension of its use beyond the point of definitive surgical care is open to question.

Alex P. Kelly, Jr., MD, Chief, Division of Plastic Surgery, Henry Ford Hospital, Detroit, Mich.

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AT DEPAUW UNIVERSITY DURING THE 1963 FOOTBALL SEASON

By Ralph W. Berlin, Athletic Director

During the 1963 football season at DePauw University I kept a record of injuries that occurred. The record includes everything from a bruised leg to a broken hand and torn knee ligament.

For those of you that are not familiar with DePauw University. It is a small Liberal Arts College with an enrollment of 2,300 students. Athletically, the school competes in the Indiana Collegiate Conference. The school plays a nine game schedule that includes the conference team, Ball State, Butler, Evansville, Indiana State, St. Josephs, and Valparaiso. The remaining three games are played against Wabash, and such standout small college teams as Wittenberg, and Washington University of St. Louis. This past season DePauw finished with a 5-4 record, winding up in a tie for third in the I.C.C. DePauw accomplished this by winning their last three games, all of which we entered as the underdog.

The analysis covers the period from September 1st through November 16th. During this period we had 120 reported injuries. When I speak of 120 injuries I am speaking of the injuries that required treatment and follow-up care. I didn't keep any record on the minor bruises and abrasions. We require that all injuries be reported, however I am sure that some were not.

Included were both the freshman and varsity teams. Our squad was a relatively small one. The varsity numbered 39, while the freshman squad numbered 31.

We had 72 practice periods during the season. This covered a 11 week period. We also played 9 games. Our two-a-day practices lasted from September 1st through September 14th. As might be expected this period saw the majority of our injuries occur. The practice periods during this time averaged 1:30 minutes in the morning and 1:50 minutes in the afternoon. For the most part our morning practices were light with the bulk of our contact occurring in the afternoon. Once school started the average practice time was 1:35 minutes per day. Monday and Friday were the shortest days, averaging 45 minutes to one hour. Tuesday and Wednesday were the longest days with the practices running on an average of 1:35 to 1:55 minutes. We had no required workout on Sunday.

The most frequent injuries were to the knee, fingers, shoulder, ankle, and thigh area. Of the 120 injuries reported:

24 were a direct result of a game
96 were a result of practice.

Of the 96 practice injuries:

37 were sustained by freshman players
59 were sustained by varsity players.

Of all the injuries reported 37 required some modification to their practice program. This ranged all the way from a simple bridged pad, with contact, up to complete immobilization in a cast with no contact. The total number of practice days missed was 141. We were fortunate in that two broken hands, two sprained ankles, and a hip pointer occurred in the final game. Otherwise the practice time missed would have been greater.

We had one boy report with a fractured navicular bone, a result of a summer accident. This injury never healed and the boy missed the entire season. We had seven boys miss at least one game. Three boys missed the entire season.

We also had a series of injuries early in the year that had a crippling effect upon the squad. Between September 1st and September 30th we lost five players. Four were first stringers. Three knees, one broken hand, and one dislocated shoulder. One knee required surgery, lost for year. One was placed in a cast, returned after 50 days, one was rested 21 days, complete rest, he then returned to practice. The hand and shoulder were out 5 and 6 weeks respectively.

The number of injuries received by position:

1. Halfbacks 36
2. Tackles 22
3. Ends 19
4. Guards 13
5. Fullbacks 10
6. Centers 8
7. Q-Backs *6

* Two of our defensive backs were listed as quarterbacks, and they sustained the bulk of the injuries to the QB.

The most hazardous periods of the season in regards to injuries were:

1. 11th week saw the most injuries in a game. (Last game) 6
2. 1st week was the most hazardous as far as total number of injuries was concerned. 28
3. 1st and 2nd weeks saw the greatest number of serious injuries. 9

CONCLUSION: In an evaluation of this analysis I have arrived at certain conclusions. First, I feel that a lot of sprained ankles can be eliminated by requiring that all players wear high top shoes for practice and that all players be taped. Second, practice fields condition will effect the number of injuries you receive. Fields should be watered and the practice sessions rotated from field to field. Thirdly, equipment should be fitted by either the equipment man or by an assistant coach.

After reading Charles Martins analysis in the N.A.T.A. Journal of October 1962, I decided to make one on a small college level.

NATIONAL COLLEGIATE CHAMPIONSHIP EVENTS

Event	Host Institution	Date
Baseball–18th	Creighton University Omaha, Nebraska	June 9-12
Basketball–26th		
First Round	To be determined	March 7, 9 or 10
Regionals:		
East	North Carolina State College Raleigh, North Carolina	March 13-14
Mideast	University of Minnesota Minneapolis, Minnesota	March 13-14
Midwest	University of Wichita Wichita, Kansas	March 13-14
West	Oregon State University Corvallis, Oregon	March 13-14
Finals	Big Eight & Missouri Valley Conferences Kansas City, Misspuri	March 20-21
Cross-Country–27th	Michigan State University East Lansing, Michigan	November 25
Fencing–20th	Harvard University Cambridge, Massachusetts	March 20-21
Golf–67th	Colorado College The Broadmoor, Colorado Springs	June 15-20
Gymnastics–22nd	Los Angeles State College Los Angeles, California	March 27-28
Ice Hockey–17th	University of Denver Denver, Colorado	March 19-21
Skiing–11th	Dartmouth College Hanover, New Hampshire	March 5-7
Soccer–5th		
First Round	To be determined	November 21-25
Regionals	To be determined	November 27- December 2
Finals	Rutgers University New Brunswick, New Jersey	December 5-7
Swimming–41st	Yale University New Haven, Connecticut	March 26-28
Tennis–80th	Michigan State University East Lansing, Michigan	June 15-20
Track and Field–43rd	University of Oregon Eugene, Oregon	June 18-20
Wrestling–34th	Cornell University	March 26-28

1963-1964 National College Division Championships

Event	Host Institution	Date
Basketball–8th		
Regionals	To be determined	March 6-7
Finals	Evansville College Evansville, Indiana	March 11-13
Cross-Country–7th	Wheaton College Wheaton, Illinois	November 16
Golf–2nd	Southwest Missouri State College Springfield, Missouri	June 8-12
*Swimming–1st	Grove City College Grove City, Pennsylvania	March 20-21
Tennis–2nd	DePauw University Greencastle, Indiana	June 10-13
Track and Field–2nd	Fresno State College Fresno, California	June 12-13
Wrestling–2nd	State College of Iowa Cedar Falls, Iowa	March 13-14

(*)–Subject to Convention approval.

HEADQUARTERS FOR 1964 N.A.T.A MEETING

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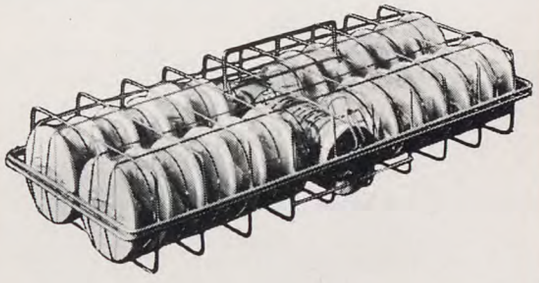

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