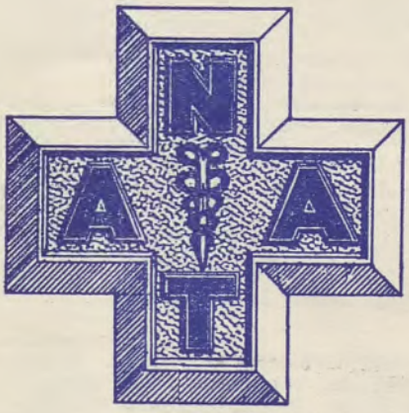
The JOURNAL

JUNE 1958

OF THE

NATIONAL ATHLETIC TRAINERS ASSOCIATION



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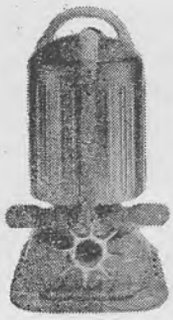

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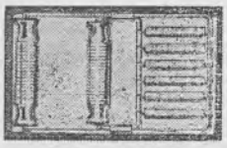

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LEGAL LIABILITY FOR ATHLETIC INJURIES

By SAMUEL M. FAHR
Professor, College of Law, State University of Iowa

A jury in California (where everything is bigger than life-size) recently awarded a 17-year-old high school football player $325,000 in his damage suit against the school district for which he played; the student alleged he had been paralyzed as a result of injuries suffered in a football game. The fact that the trial judge reduced the jury's award to a mere $206,804 may comfort some readers, but the case, by virtue of the size of the award against the school district, illustrates dramatically the fact that school districts and persons connected with physical education are subject to legal liability under certain circumstances for injuries occurring during physical education classes and sports events. It is the purpose of this brief article to outline the nature of such liability and to illustrate the discussion by actual litigated cases.

WHAT TORT LIABILITY IS

At the outset, since most of my readers are not lawyers, let me state the nature of this liability in general. It is, first of all, what lawyers call "tort" liability, that is, liability for personal injuries caused through the defendant's negligence (a word with a technical meaning) or through intentional harm (ordinarily not found in cases involving physical education). To succeed, any cause of action in tort involves proof of four essential elements. They are: (a) that the defendant owed a duty to avoid unreasonable risks to others; (b) that the defendant failed to observe that duty; (c) that failure to observe that duty caused (in the specialized legal sense of that verb) the damage which occurred; and (d) that damage in fact occurred to plaintiff, together with proof of the nature and probable extent of the damage.

In setting this standard of conduct for physical education instructors and coaches, the law does not intend to make them guarantee that no injuries will occur; rather it requires them to act as a "reasonable man" would in the circumstances. The "reasonable man" — a hypothetical being never yet seen on earth — is a person endowed with normal intellect, normal perception, and normal experience.

In addition, and this is important for my readers, this mythical being must possess **and exercise** such superior training and skill as he holds himself out to have. A physical education instructor is held to reasonable knowledge of physiology, anatomy, and the nature of the equipment and games employed. In addition, such as person is held to understand the physical limitations of the students and players under his supervision; for instance he should realize that 95-pound boys should not scrimmage with 180-pound boys.

Furthermore, while not holding themselves out as doctors, such personnel are held to a greater knowledge than are untrained people of the nature of athletic injuries and the immediate nature of first-aid remedies to be employed should injuries occour. Note that it won't do to argue in defense that a given physical education teacher in fact did not possess adequate training or judgement; the law sets up the "reasonable physical education instructor" standard and people in the field fail to live up to it at their peril.

VICARIOUS LIABILITY

Another general matter deserves discussion: How can a California school district be liable for an injury caused by negligence of a football coach? This result stems from what is known as "vicarious liability," or the doctrine of **respondent superior.** Employers are liable for torts of employees committed "within the scope of their employment." This is a matter of social policy long observed by the law. "Scope of employment" is a phrase hard to define, but easy to illustrate. If a physical education teacher permits his regular class to exercise on dangerously defective equipment he is within the scope of his employment. But if the same man, irritated at criticism of his conduct of the class, pays an evening visit to the home of his critic and punches him in the nose, he is probably not within the scope of his employment. Obviously, then, one defense school districts may wish to raise in appropriate cases will be that the conduct complained of was not within the scope of employment. Vicarious liability is spreading in scope and places ever heavier burdens on all employers, including employers of coaches, trainers, and physical education personnel.

The law is not clear yet as to whether in all states school districts are liable under the doctrine of **respondent superior.** Older decisions frequently held them free of legal liability of the vicarious sort. Various arguments are advanced for this position: that there is no true master-servant relationship, that they should not be liable for their public functions, that they have not funds to pay claims. Whatever the case twenty-five years ago, such immunity from suit is slowly disappearing, and I look for a state of the law in a few more decades (not sooner, because the law moves with all the speed of a glacier) in which in most states, school districts and municipalities will be liable for all torts of their employees committed within the scope of their employment. In fact, a recent Iowa case held a school district liable for athletic activities which constituted what is known in the law as a nuisance; this decision overturned eighty years of decided cases.

Ordinarily school principals and officials of that sort are not held liable for torts of school employees, except possibly where there is direct supervision by the school official concerned.

DEFENSES AVAILABLE

Certain defenses may be available to personnel in physical education work. One is called the doctrine of "assumption of the risk." Certain risks are inherent in athletics, and persons engaging in sports assume them **if they know or should know of them.** Obviously, when dealing with younger people, they must be told of risks involved, and perhaps also their parents must consent, or the defense of assumption of the risk will not be available. But note well: no one assumes unreasonable risks or the danger of negligent conduct, only risks inherent in the nature of the activity. Incidentally, spectators, too, have been held to assume certain risks. A baseball spectator sitting back of first base along the foul line assumes the risks of foul balls; but since people sitting behind the plate are in constant danger it behooves sponsors of baseball games to put the usual stout net there and keep it in repair.

Another common defense is called contributory negligence. Even though the coach was negligent, if the injured participant was also negligent relative to the harm which occurred, this will be a defense liability on the part of the coach. For example, in one case a track coach negligently permitted discus practice on a crowded field; but a girl who disregarded warning shouts and ran across the field as a result of which she was hit by a thrown discus, was held to have been contributorily negligent and so unable to recover.

SOME TYPICAL CASES

Having outlined in a brief and general way the nature of tort liability and some defenses occasionally available, let us look at some decided cases for typical situations and

(Continued On Page 3)

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MEASUREMENT AND INSTRUCTION IN THE USE OF CRUTCHES

GEORGE F. SULLIVAN
Asst. Trainer, University of Nebraska

The crutch has now become a piece of standardized equipment in the training room. Although the crutch has been placed in the training room for a therapeutic reason, we have neglected the proper means of measurement and giving a few seconds of instruction to the injured player.

The method of measuring crutches for the right length is quite simple and gives us good results. The method is as follows: The player is assisted in standing "relaxed" against a wall with his heels against the baseboard. When we see the player is relaxed, shoulders not raised, and hands at his sides, we make a pencil mark on the wall at the level of the fold of the axilla.

If the player is not able to stand, you may take the measurements while he is lying on the training table. In this method of measurement we are sure the body is straight and the shoulders are down. We try to have the player assume a relaxed position as if he were standing. We then measure from the anterior fold of the axilla to the player's heel.

The distance from the mark to the floor or from the anterior fold of the axilla to the heel should be taken with a tape measure. To the above distance we add two inches, which gives the proper length.

This measurement must be considered to include the rubber axilla padding of the crutches and the rubber tips. Since shoulder cross pieces are not straight, but slightly concave to fit the armpit, the measurement must be thought of as extending from the center of the shoulder crosspiece.

The hand pieces should be adjusted so the player's elbows are bent to an angle of about thirty degrees. The adjustment of the crutch hand pieces is taken after the player is standing straight, grasping the cross pieces with his hands, which are dorsiflexed, and his weight on his hands.

"After the player becomes adjusted to the use of crutches, we make minor crutch adjustments in order to make his walking more comfortable.

"The correct crutch stance is a position in which the head is up straight and tall, and the pelvis is held as much as possible over the feet. The crutches are placed about four inches in front of the player and about four inches to each side, allowing a base from which to work. The player takes his weight mainly on his hands. The elbows are slightly bent. The shoulders are down and not hunched, and the crutches just clear the armpits, so that a minimum of weight is taken by the shoulders. The crutches lean against the ribs and are grasped there by the muscles that draw the arms toward the body."*

The crutch is generally checked out to a player who has had injury to either one ankle or knee. With a unilateral injury of the leg, the crutch gait can only be one type, which is the "swing-through crutch gait." This is very easily taught with a simple demonstration by the trainer. The "swing-through crutch gait" is as follows: 1. Both crutches out front of the standing player. 2. The next step is to have the player lift and swing the body beyond the crutches. The boy will discover his own variance and rhythm of the above gait.

More About Legal Liability —

(Continued From Page 1)

legal results.

First, one to reassure the fearful. In a recent New Jersey case, a 14-year old high school Freshman jumped a gym horse, the mat slipped, and he broke his arm. He sued the gym teacher unsuccessfully. Mark the reasons why he lost. First, he had been warned that there was always some risk in this activity; so he assumed that risk. Second, proper mats had been carefully placed about the horse. Third, the defendant coach had demonstrated the trick beforehand. Fourth, the gym instructor personally, and with student volunteer, supervised the class. (You can imagine, the jury's reaction had this risky exercise taken place while the defendant was drinking coffee in his office.) Finally, correct first aid measures were immediately administered.

Contrast that case with another in the same year. The plaintiff was seriously injured in the head in a school boxing match. He had had no instruction, was matched against a boy who had been boxing for two years, and was not wearing a protective helmet. The plaintiff successfully sued the coach. Note the earmarks of liability. First, plaintiff was assigned an opponent well beyond his powers. Second, he was untrained. Third, he had not been warned of the danger; hence, no defense of assumption of the risk. Finally, protective equipment generally worn even in college bouts was not used.

Another case illustrates other facts bearing on liability. An eighth grade boy, weighing 97 pounds in a "free play" period of touch football was blocked by a 145 pound Junior and injured in the abdomen. The coach had several times warned all hands against rough play; but exponent charts had not been used to match relative equals. After the injury he was taken to the first aid room, covered with a blanket, and when he revealed he had passed bloody urine his parents were called and told of the injury; they took him home and called the family doctor. Neither coach nor school district were held liable. In favor of liability one might cite the disparity in weights and ages here. But working against liability were several facts which outweighed this: for one thing, the coach had warned against blocking and was there when the injury occurred. For another, prompt action was taken following the injury. Furthermore, as soon as any serious symptoms showed up, the parents were called and fully notified by the coach of all that had happened; the coach was alert enough to recognize bloody urine as a sign of more than a normal blow to the abdomen and he did not rely on the boy to tell all the symptoms to the parents.

INJURIES AND LIABILITY

Physical condition, or the lack of it, may lead to liability. In an Oregon case a basketball coach, though warned by a doctor, allowed a boy to compete in intramural basketball; a knee injury was aggravated and the coach was held liable. Ethical matters apart, coaches should expect legal liability where they knowingly allow persons with injuries to compete. I, myself, wonder whether even written consent from the boy himself would constitute a defense in such a case, but a recent Georgia case allowed a coach to escape liability where a 16-year-old boy who had been injured before voluntarily played in a football game; in that case the court found the parents had consented too, because they sent the boy to school and did not object to his continued playing of football. I wouldn't push such a case too far, if I were a coach. Not every court would be so lenient. We know, furthermore, that many boys, because of a code prevailing among athletes, are likely to play at any cost rather than be branded "yellow" or tell their parents of injuries.

Of course, occasional deaths occur owing to heart disease not detected by physical examination; in such cases there is no liability, but certainly the use of reasonably thorough physical examinations annually furnishes added protection from possible legal liability.

DEFECTIVE EQUIPMENT

Defective equipment has led to legal liability both for coaches and for school districts. In a Minnesota case where a solution of raw lime was used to mark a football field both the school district and the groundskeeper were held liable for eye injuries to players who got lime in their eyes. In several cases failure to use mats in gym exercise was held grounds for suit. Defective floorboards which caused a gym injury have been held negligence on the part of the school board; so also where an athletic director allowed overcrowding in wooden stands, which collapsed, injuring spectators.

One point worthy of mention is the matter of first aid. Even though an injury is originally due to no negligence on the part of supervisory personnel, they are under a duty, because of their position and training, to render reasonable first aid. The physical education teacher is, of course, not a physician, but he at least is generally held to a standard such that he must be able to give temporary treatment to common simple injuries and, what may be equally important, to recognize more serious injuries and see to it that professional help is gotten as soon as possible. Suppose through no fault of a coach a player is knocked out and remains unconscious for an appreciable time. The law imposes on the coach, by virtue of his position, a duty to see that the player is examined by a physician as soon as may be. And where a coach undertakes treatment of injuries, the law imposes a standard of reasonable skill and judgement on him. Success is not guaranteed or required, even of physicians, but skill and care must be exercised if liability is to be avoided. This is the more true because once anyone begins treatment he in effect keeps away others who might render it, thus assuming an added burden.

NEGLIGENCE FROM 4 SOURCES

Now let us sum up. We have seen that negligence may arise from four general sources, all of which can be avoided by training and care. Perhaps foremost as a source of failure to instruct students in the physical activity in which they are engaged; in so many of the cases plaintiff was a novice, and often a novice pitted against experienced people in a rough game. Often too, the injured party had never been shown how to execute a feat safely, nor warned of its dangers. Second comes failure to supervise sports, and the circumstances under which they are played, with instructors permitting games to get out of hand, and sometimes leaving the scene of action unattended by any competent person. Third, many cases show failure to use proper safety equipment such as mats in tumbling, or use of defective equipment which should have been discovered and repaired. Finally, many cases show liability where failure to take proper first aid steps aggravated an injury and led to unnecessary liability for the instructor.

The recent California case, mentioned in the first sentence of this article, is a shocker. No one can predict what effect such a decision will have upon future conduct of athletic events in California, let alone the rest of the states. But one thing is certain: it is a trend of the times to expand both the area in which tort liability is likely to be found and the amount recoverable upon proof of such liability. No one engaged in physical education can ignore this trend, and thoughtful persons so engaged must see to it that personnel training and maintenance of facilities take full account of it.

*Original Publication: Iowa AHPER JOURNAL, Feb. 1958.

THE MICHIGAN HEEL CUP

In the summer of 1950 I came across a new kind of orthopedic casting material that I thought could be used to advantage by those of us in the athletic training field. It is a material formed by combining woven fiberglas cloth and basic resins. It is light in weight, extremely tough and impervious to moisture. It is a versatile material that can be adapted to the many casting jobs we find in athletics.

We first used this material in football (1950) to fashion a practical knee-brace for one of our halfbacks. In January of 1951 we made our first "heel cup" and it turned out to be a practical and efficient device to relieve and prevent the painful heel bruise. We have used this material in other sports as well. Here is a list of a few devices we have made: toe guard for catchers, striking pad (on inside of ankle) for hurdlers, thumb guard in football (for practice only, of course) arch support, rib guard, broken-nose guard (basketball) wrist "cock-up" splint, shin guard, knee cap protector, stabilizer for the 5th metatarsal-phalangeal joint. **It is a versatile material.** But our "heel cup" has had the most dramatic success. All of our hig jumpers, broad jumpers, pole vaulters and hurdlers wear this protective device. We're bragging, but in the past eight years we have not had an incapacitating heel bruise problef in any sport.

Because we have received numerous inquiries about this "heel cup," we have prepared this paper to help show you how to "do-it-yourself." To date this information has been sent all over the United States, and to Canada, Finland, Denmark, Sweden and the Union of South Africa.

I BASIC MATERIALS

1. Plaster-of-Paris splints (quick-drying in rolls 3" wide) for making primary **cast** of heel.
2. Duroc for making solid form of heel.
3. Fiberglas cloth and basic resins for making final product the "heel cup".
4. Petrolatum (vaseline)
5. Paraffin Wax, fine sandpaper, paper cups, tongue depressors, measuring spoon (tablespoon size), wax paper.

II TECHNIQUE

1. Lay athlete in prone position. Smear the heel with a thin coating of petrolatum. Using fast-drying plaster-of-Paris splints (strips cut about 2" x 6") make a primary **cast** of the heel. **Cast** can be removed from heel in about 15 minutes.

2. Trim **cast** with scissors so a neat, trim Duroc form will result. Smear thin, even layer of petrolatum on inner side of plaster-of-Paris **cast.** Fill **cast** with powder-water mix (Duroc). This will harden in about 30 minutes to give you a rock-like **form** around which you can build the fiberglas "heel cup". (Trade secret: take the long piece of the cardboard tube found in the center of the tape rolls in your tape can. Cut off a piece about 4" long. Seal off one end with a piece of tape, and insert the sealed end into the still-wet mixture, as in sketch.)

3. Remove hardened form from **cast.** Any small holes in the form should be filled in with Duroc. Just mix a small amount of the Duroc in a small paper cup. Sand entire outer surface of form with sandpaper. We rub paraffin wax over the form so as to get a nice slick surface. Finally, spread a thin coating of petrolatum on form before applying the wet fiberglas cloth.

4. Cut the fiberglas cloth in 6" squares, larger or smaller, depending on size of the **form.** Four squares are usually enough for one "cup". The resins that bind the fiberglas cloth are mixed in accordance with the direction on the can. We find that using four (4) tablespoons "A" to one (1) tablespoon "B" is just about the right amount for making one "cup". Mix resins in large paper cup, stir with large tongue depressor and use depressor to smooth resins on the individual squares of cloth. We spread an individual square of cloth on several thicknesses of wax paper. Spread the resin-mix evenly over one square, then add a second on the first, etc. When you have four of them piled one on the other, and they are good and wet with resin-mix, then add each square individually to the **form.** Smooth each one on securely. No bulging or wrinkling. To insure against bulging, slit the squares in the indicated manner **before** adding the wet resin-mix.

EXTRA

Here is where those 4" tubes come into the picture. We had trouble in finding a secure means of holding the **form** while putting the fiberglas squares in place. We built ourselves a two-piece stand:

5. After the fiberglas "cup" has hardened (6 to 8 hours) pry off gently with screwdriver, trim to desired size with hack saw or coping saw, use sandpaper to smooth all rough edges. Size of "cup" approximately as shown:

6. After trial by athlete, cut and trim off a bit here and there as need be. The athlete can tell you where it cuts or binds. The "cup" is worn directly on the skin, no padding of any sort underneath. Some of our fellows use a few strips of tape to secure the "cup", but most use nothing at all. The shoe keeps it in place.

IN CONCLUSION

We save the Duroc **form** until the athlete has graduated. It can be used over again. We ask graduating athletes to turn in "heel cups" so we will have an emergency supply. There is always a chance of fitting an athlete in an emergency if you have a large enough supply of old "heel cups" We repair broken cups and return same to the athlete if they are not too badly broken. In fact, repaired cups are often stronger than new ones. It is always wise to keep an extra cup on hand for a key athlete who uses one.

Be sure and spread old newspaper over your working surface. That wet resin mixture raises hob with any surface. Alcohol is the best solvent for cleaning up fingers, scissors and counter top.

By the way, some persons are allergic to the resins. So protect your hands. Rubber gloves are better, but finger cots are cheaper — your choice. Speaking of gloves, we wear leather-palmed gloves when removing the untrimmed "heel cup" from the **form.** Saves the skin and the patience.

A WORD OF CAUTION: It is not safe to form the "cup" directly on the heel of the athlete. If the wet fiberglas and resin mix were placed directly on the heel and permitted to remain there for some time, the chemical action of the resins would cause a severe burn. Looks as though we are stuck with a basic three-step process.

We will appreciate any and all suggestions in regard to improving this gadget of ours. Your criticism will be welcome.

JIM HUNT, Head Trainer
RUSS ADDISON, LEN PADDOCK
Assistants

SOURCE OF SUPPLY

We get our material, resins and Ortho-cloth from the following concern. Just write and ask for information and the latest prices.

Vernon Benshoff Company
P. O. Box 1587
Pittsburgh 30, Pennsylvania

The Duroc material for making the form is made by Ransom and Randolph Company of Toledo, Ohio. It is called Duroc and is available through most dental supply stores at a cost of about $7.00 per 35 pounds.

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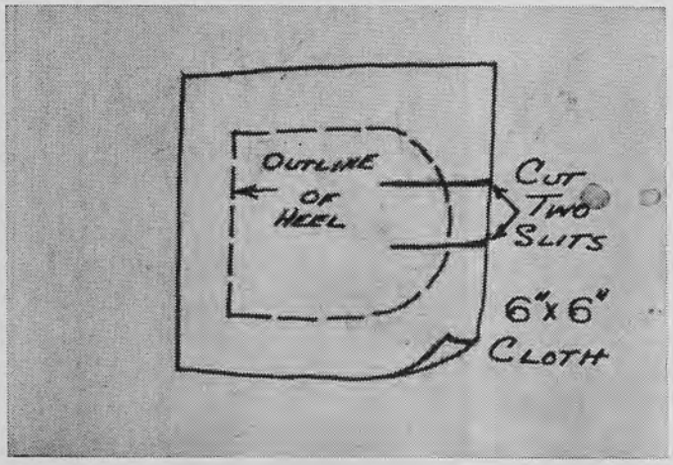
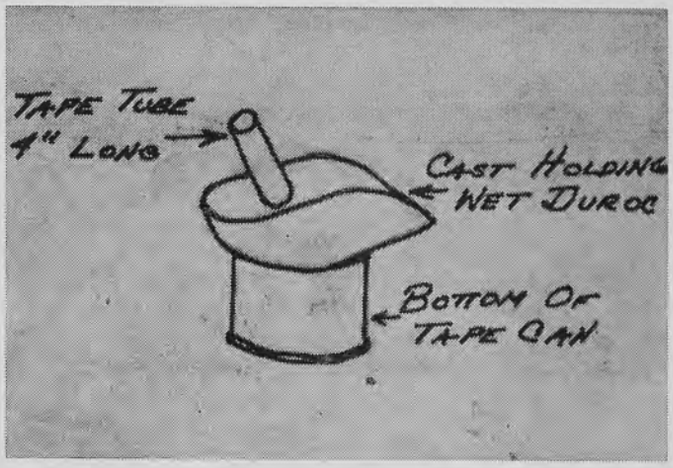
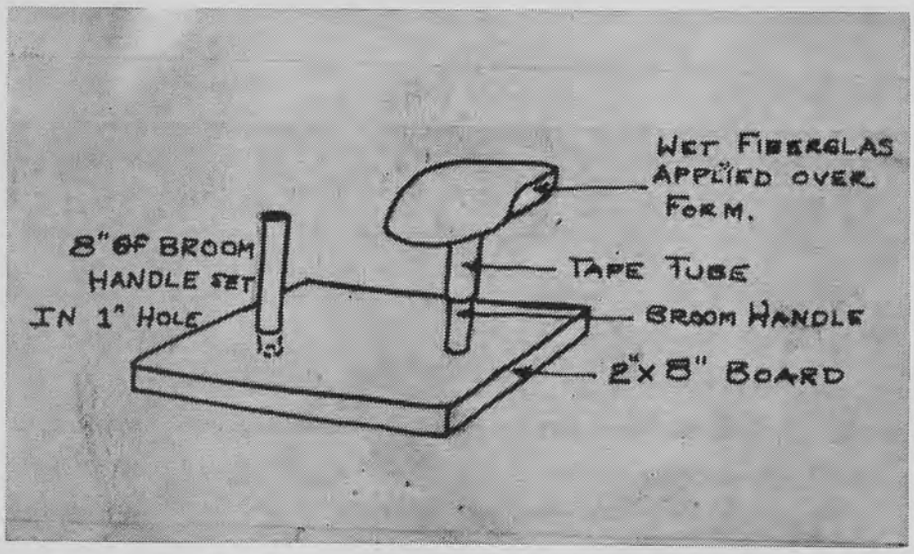
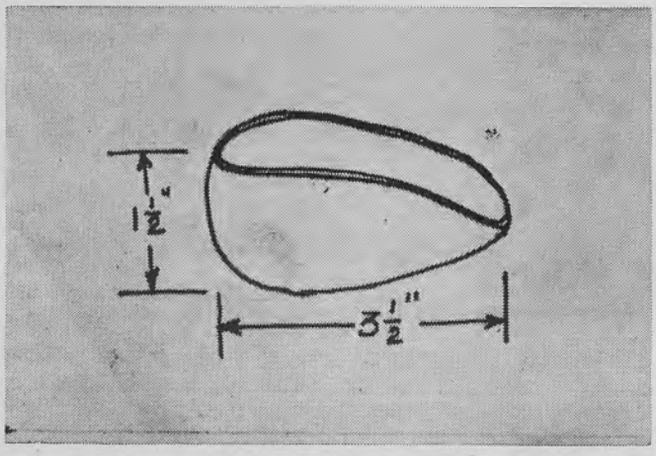
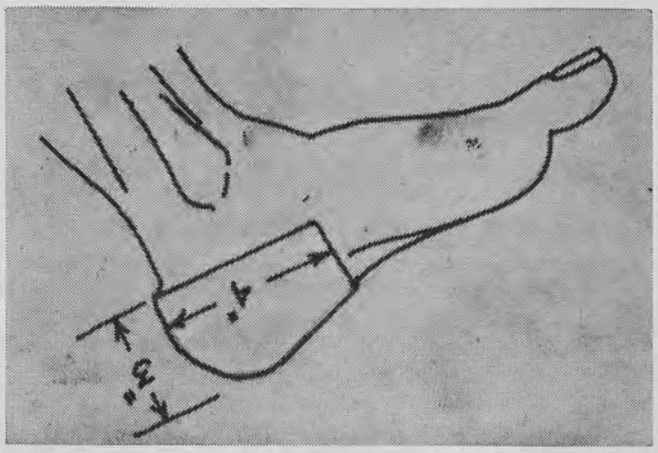
Heel Cup Illustrated











EDITORIAL DISCUSSION

Since its original conception by Jim Hunt, the heel cup has been used by numerous trainers throughout the country. Tony Dougal, Dartmouth College, presented the technique of heel cup production as well as other uses for fiberglas in athletics at the sixth annual meetings in 1956.

Jack Williamson, University of California, employs Castex(R) (Bauer and Black) in heel cup construction, applying the castex directly on the athlete. Contrary to previous opinion, he states that he has never evidenced a case of acetone reaction from direct application on the skin. Drying is hastened by directing an infra red lamp upon the wet heel cup.

Ross Moore, Texas Western College, concurs with Williamson and others that possibly if sufficient hardener was mixed with the resin to shorten drying time, fiberglas could be safely applied directly to the skin.

In order to simplify forming the primary cast of the heel, the editor has used Celastic(R) (Joseph Jones & Co., New York)[1], and more recently Stretchon(R) (San Francisco Research Corp.) which is a plaster of paris splint on a stretching weave crinoline that conforms ideally to an irregular surface, and dries quickly.

When desired, all materials necessary to fashion a heel cup may be purchased locally. The fiberglas cloth, resin and hardener are available at most small boat works or hobby shops. The 60" width cloth can be cut to any length desired, and for heel cups, a six inch wide strip roll works nicely. The wider widths are employed when constructing a large injury pad. Plaster of Paris, or modeling plaster may be used in making the positive heel mold, and can be found in any number of retail shops.

[1] A combination of two materials used to Construct Large Area Injury Pads, J.N.A.T.A., April, 1957.

AN OPEN INVITATION

With this complimentary issue, the members of the National Athletic Trainers Association offer you an opportunity of subscribing to **The Journal** of the association, which is its official publication. This quarterly magazine serves as a publication source and clearing house for the research and writings about topics pertinent to the causal factors, prevention, or treatment, of athletic injuries. Included in the past year have been articles authored by member athletic trainers, physicians, physiologists, physical therapists, corrective therapists, and others vitally interested in improving athletic performance or furthering the health and safety of the young men entrusted to our care. It is our earnest hope that through the interchange of information by the **Journal** that all students participating in sports programs in secondary schools and colleges of the country will benefit by the greater knowledge available to us.

We hope that you will want each issue as a reference for your staff and for your student majors. Yearly subscription price is two dollars, which should be sent to Wm. Newell, National Secretary, 1104 Beck Lane, Lafayette, Indiana. Requests for further information concerning subscription or editorial matters may be addressed directly to the editor.

Sincerely,
Arthur L. Dickinson
Arizona State
Tempe, Arizona
Editor, **The Journal**

More About Michigan Heel Cup —

(Continued from Page 4)

We figure that a basic supply of material comes to about $16.40. This includes:

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PERIODICAL LITERATURE OF INTEREST

Adams, Thomas, and B. G. Covino, "Racial Variations to a Standardized Cold Stress," **J. Applied Physiol.**, 12:9-12, Jan. 1958.

Becker, Folke, and E. V. Lipscomb, "Bacterial Resistance to Ultraviolet Irradiation," **Arch. Phys. Med.**, 39:247-8, April 1958.

Bera, G. N., and J. Chowdbury, "Effect of Niacin and Vitamin C on Blood Sugar," **Am. Jour. Physiol.**, 192:511-13, March 1958.

Grosse, Joel E., "Depression of Muscle Fatigue Curves by Heat and Cold," **Res. Quart.**, 29:10-31, March, 1958.

Rasch, P. J., "Effect of a Combative Sport (Wrestling) on the Kidneys," **Res. Quart.**, 29:54-59, March 1958.

Stimson, Cyrus W., and Others, "Paraffin Bath as Thermotherapy: An Evaluation," **Arch. of Physical Med.**, 39:219-27, April, 1958.

Teichner, Warren H., "Manual Dexterity in the Cold," **J. Applied Physiology**, 11:333-338, Nov. 1957.


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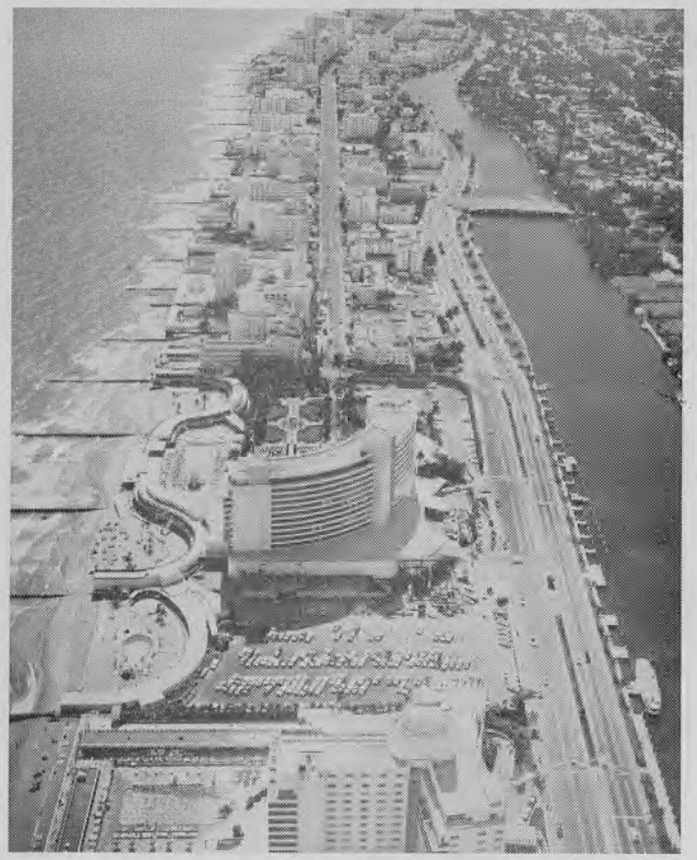

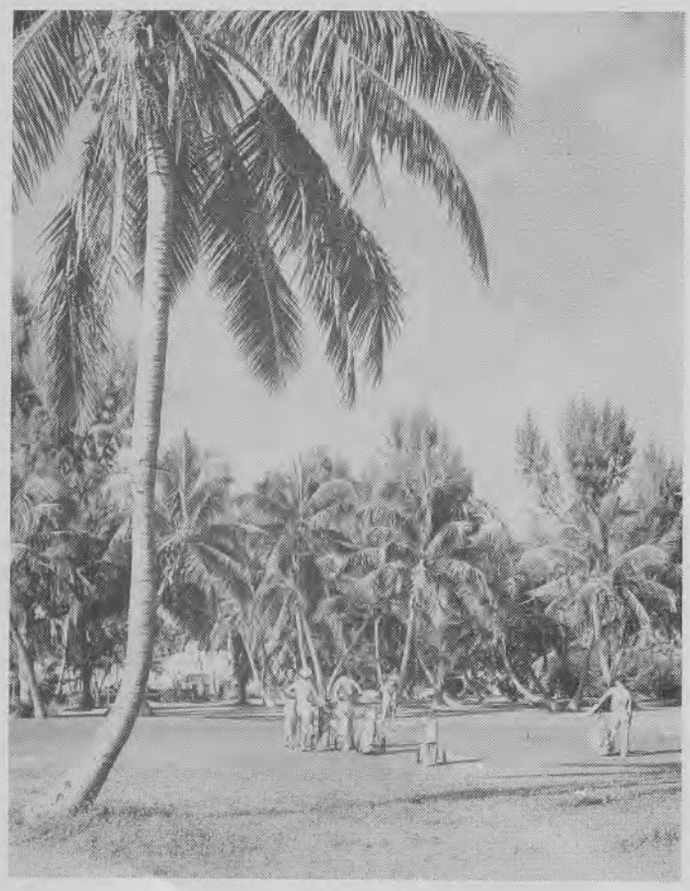

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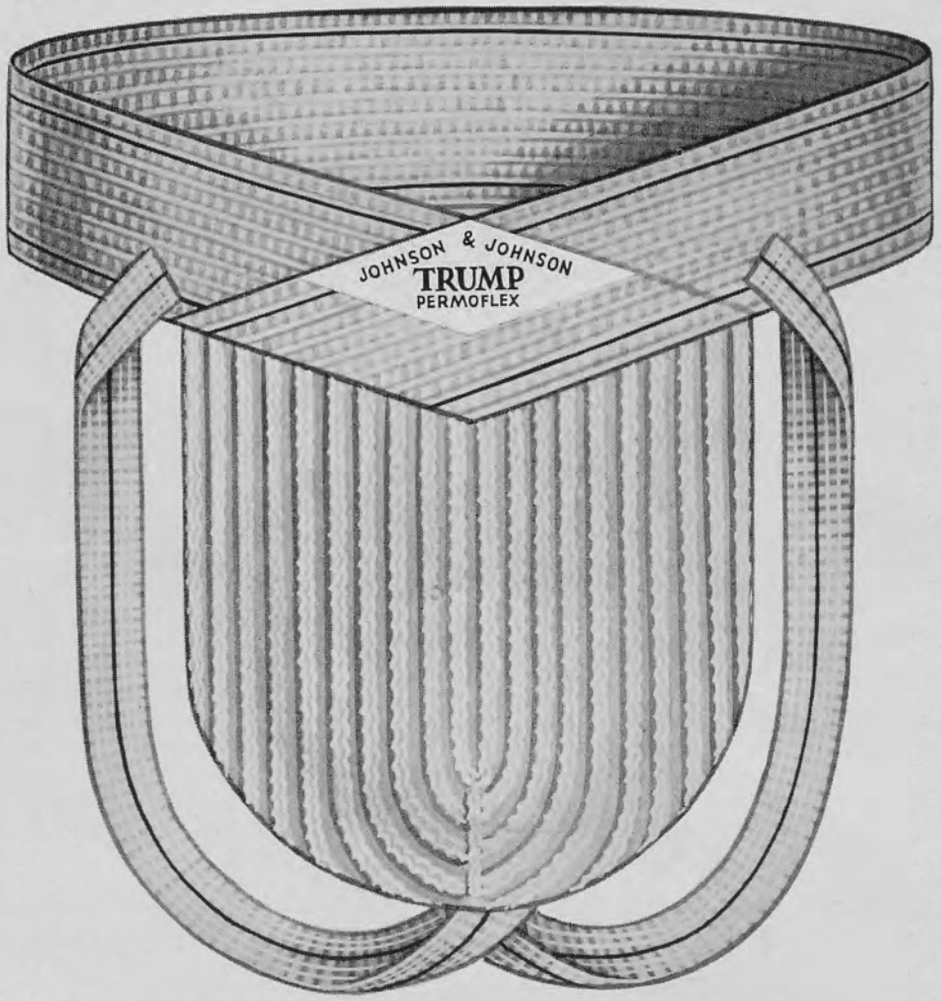

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KNEE INJURY

By
JAMES E. GENASCI
U. S. Air Force Academy

I. INTRODUCTION

Injuries to the knee joints are very numerous in sports and industry. The incidence of knee injuries in athletics is especially high as cited by Bilik,[1] Lloyd, Eastwood and Deaver,[9] Thorndike,[12] Boozer,[2] DeWeise and Reed.[5]

Bilik[1] states that a knee injury is a "very annoying and disabling condition . . . and is definitely on the increase, especially in football. It constitutes, today, one of the greatest health hazards in athletics."

This was in 1934; a quarter of a century later we are still plagued with the same problem. In spite of its powerful construction, the knee joint is most susceptible to injuries in athletics.

Lloyd, Deaver, and Eastwood[9] state, "The leg and foot area accounted for 43% of all the injuries; the knee and ankle being the parts most frequently injured." They found that little difference existed between the per cent of high school and college knee injuries. As for types of injuries to the knee, sprains were most numerous followed by strains, bone injuries, and wounds.

Boozer[2] writes, "On the basis of the figures obtained at Springfield . . . , the part of the body most likely to be injured is the leg, followed closely by the knee . . ." "The joints most susceptible to injury in order of their frequency are: knees, ankles, and shoulders."

Football accounts for most of these injuries.

DeWeise and Reed,[5] according to their Survey of New England Colleges, found that "the knee was the part of the body injured most frequently, closely followed by the ankle and thigh."

Thorndike[12] over a fifteen-year period has recorded 865 knee injuries at Harvard. Of the total knee injuries, sprains accounted for 423, over 200 more than any other type of injury to the knee. Of these 423 ligament sprains, there were only 24 crucial ligament injuries as compared to 254 medical collateral injuries. Even though there were few in number, it is well for those interested in athletic injuries to know how to differentiate in diagnosing the various ligaments involved.

Accurate diagnosing is usually done twenty-four to forty-eight hours after the injury occurs. Since the function of the crucial ligaments is to prevent excess anteroposterior mobility in the knee joint, one of the most common functional tests is the "drawer" test, i.e. forward and backward movement of the tibia on the femur to check for excessive forward and backward movement.

II. BONES, LIGAMENTS, AND MUSCLES OF THE KNEE JOINT

The knee joint is one of the most complicated in the body.[1-8-6] Some of the main structures which make up the knee joint are as follows:

Bones — Distal end of the femur with two articulating condyles and the proximal head of the tibia with its articulating condyles. The patella, a sesamoid bone, is anterior to the knee joint and serves to protect and assists in binding the joint, being the point of insertion of the quadriceps group.

Ligaments — Patellar, collateral (media and lateral), minisci (medial and lateral), cruciate (anterior and posterior), transverse, coronary, and popliteal.

Muscles — (A) Extensors — Quadriceps femoris group including the rectus femoris, vastus (lateralis, medialis, and intermedius), and (B) Flexors — Biceps femoris, semimembranosus, and semitendinosus (hamstrings) and sartorius. Of mention would be the gracilis; although it is primarily an adductor of the thigh, it also assists in medial rotation of the knee[3] along with the sartorius, semimembranosus, semitendinosus, and popliteus.[6] In addition, the articularis genu should receive mention as it moves the synovial membrane.

The knee joint contains the most extensive distribution of synovial membrane, bursa, fascia, and fat pads of any joint in the body.

III. ETIOLOGY

Crucial ligament tears are the result of severe wrenching or twisting of the condyles of the femur on the head of the tibia, thereby damaging one or both of these internal binding ligaments.

The function of the cruciate ligament is to prevent ventral or dorsal displacement of the femur on the tibia at knee joint.

This severe twisting at the knee joint in football is the result of:

1. "Cutting" i.e. rapid change of direction of the player while running by "planting" or stabilizing one foot on the ground and using that as a pivot point upon which to change the direction of body movement.
2. Being blocked from the side on the legs while the foot is in contact with the ground.
3. Players "piling on" when a player is in such a position that the weight of the others is transmitted through the knee joint.
4. Being tackled at the level of the knees with the foot stabilized.

Chenoweth[10] tells us, on the subject of sprains, "Sprains . . . are usually caused by sudden wrench, traction (pull) or twist. . . The extent of the injury varies. . . In severe cases the latter (ligaments) are badly stretched or torn; the synovial membrane is crushed or bruised; the tendons about the joints are stretched; the muscle tissue surrounding the part maybe strained; blood vessels are ruptured and there is bleeding in the issues (ecchymosis); nerves are stretched and pressed upon; and the skin may be bruised.

As can be seen from the above description, the apt phrase of "once a sprain always a sprain" has a good deal of logic.

A wrenching movement violent enough to rupture the crucial lagiments will do plenty of other damage to the knee. The diagnosis is difficult. If the knee has been violently hyperextended or wrenched, and there is a great deal of pain in the popliteal space, as well as more disability of the joint than can be accounted for by the apparent injury, one is justified in suspecting an associated rupture of the crucial ligaments.[2]

"Injuries as a result of athletics are predominantly of the musculoskeletal system . . . muscles, ligaments, capsules, tendons and bones. These structures are derived from a mesodermal origin . . . as a group these mesodermal structures take longer to heal."[11]

This could be a ball carrier in an attempt to avoid a tackler or a player avoiding a blocker. With the left foot firmly positioned by the cleats (A) in the turf, and the body turned with the head of the tibia inwardly rotated on the femur, (B) stress is placed on the medial collateral ligament.[1]

If in this position the player is hit on the left side (B) or behind at the level of the knees and the force of the tackler or blocker plus his own body weight is exerted, we can readily visualize how an injury such as the "Unholy triad" (medial meniscus and ligament and cruciate liga-

ment) can take place.

IV. TREATMENT

Immediate treatment after ruling out fracture would follow conservative lines, namely, application of a compression bandage, elevation of the limb, and no weight bearing for the patient.[12] The player should be examined as soon as possible by a physician. Application of ice or cold has been recommended.[4-11-12] This procedure, if necessary, should be accomplished within 30 minutes from the time of injury. If cold is not applied within this time, extravasation of the blood, lymph, and body fluids will have already taken place and the knee will be edematous.

A lapse of two or three days, during which time the knee should be re-examined and rested, should take place before the application of thermotherapy.[7] This period is to allow for the union of the damaged vessels so they may function to carry the effused material into the general body circulation for absorption.[4-12]

In treating these traumatic athletic injuries it is of primary concern to prevent or control edema in and around the site of injury. To do this, it is necessary to care for the injured knee immediately by compression, elevation, and cold packs if available. If the extravasation of fluids into the knee joint is prevented or reduced, then the total treatment in after care will be shortened considerably.

The second phase of treatment is to stimulate the absorption of the hematoma. This is done in several ways: (1) the application of heat to bring in blood and nutrients to the healing knee, (2) the use of gentle massage to aid in relieving blood and lymph congestion, (3) increase range of movement to break adhesions, (4) moderate weight bearing to prevent development of fibrosis[1] and prevent atrophy of disuse.

" . . . the immediate treatment for traumatized tissues, the emphasis is on rest, suppression of undue hemorrhage and its exudes, and (later) the use of physiotherapeutic modalities of heat, massage and exercise."[11]

During a period of complete rest, " . . . inactivity might easily bring on a cure but might also cause noticeable atrophy and weakness in important muscle groups as is seen so frequently in the quadriceps following injury to a knee."[11]

"The knee joint, the largest and most complicated of the body, is subject to a great variety of injuries: strains, sprains, bruises, fractures, dislocations, rupture of the crucial ligaments, bursitis, synovitis, arthritis, etc."[1] Every effort should be made to strengthen the knee by means of carefully planned conditioning exercise, in order to lessen the susceptibility to injury.

"Our best hope lies in finding means of effectively strengthening and tughening the joint in order to prepare it to withstand the peculiar stresses and strains which cause injury."[1]

BIBLIOGRAPHY

1. Bilik, S. E., **The Trainer's Bible,** S. S. Reed Company, New York, 1947.
2. Boozer, Robert E., **The Nature and Incidence of Athletic Injuries at Springfield College for 1946-47,** Unpublished Master's Thesis, Springfield College, Springfield, Mass., 1948.
3. Cates, H. A., **Primary Anatomy,** The Williams and Wilkins Company, Baltimore, Mary, 1951.
4. Cramer, Frank and L. L. Boughton, and Charles Cramer, **A Training Room Manual,** Cramer Chemical Company, Kansas, 1945.
5. DeWeise, D. C., and A. S. Reed, **A Study of Knee Injuries and the Braces Used to Support Them, As They Occurred on New England Intercollegiate Football Teams During the 1948 Season,** Unpublished Master's Thesis, Springfield College, 1948.
6. Gray, Henry, **Anatomy of the Human Body,** Lea and Febiger, Philadelphia, Penn., 1930, 22nd Edition by Lewis, Warren H.
7. Kovacs, M. D., **Yearbook of Physical Medicine,** The Year Book Publishing Company, Chicago, 1950.
8. Lewen, Phillip, **The Knee, Lea and Febiger,** Philadelphia, 1952.
9. Lloyd, Dever, and Eastward, **Safety in Athletics,** W. B. Saunders Company, Philadelphia, 1936.
10. Morrison and Chenoweth, **Normal and Elementary Physical Diagnosis,** Lea and Febiger, Philadelphia, 1949.
11. Novich, Max M., **A Therapeutic Concept of Athletic Injuries, The Reporter,** N. J. A. H. P. E. and R., 1954.
12. Thorndike, A., **Athletic Injuries,** Lea and Febiger, Philadelphia, 1942.

INCREASING THE FUNCTIONAL USE OF THE PULLEY WEIGHT APPARATUS FOR PROGRESSIVE RESISTIVE EXERCISE

By KARL K. KLEIN

Assistant Professor, Physical Education, University of Texas

EDITOR'S NOTE: Considerable interest has been evidenced in Karl Klein's adaptation of the standard pulley weight apparatus to PRE loads. This article explains the simple conversion that gives excellent results.

The functional use of the Pulley Weights, in any type of a P.R.E. program, have little or no use when the regulation weight pan load is necessarily exceeded within the restorative program. This does not mean that the apparatus does not have a specific functional application but is limited primarily to use in early recovery with a decreasing utility as the patient becomes stronger and increased weight load is necessitated.

Functionally the apparatus has utility in the fundamental exercise positions of lying, sitting and standing and is excellent for obtaining specific intricate muscular group action up to the point of its limitations, the regulation weight load that comes with standard equipment.

With the attachment of the described pipe apparatus, to the weight pan hoist, it is possible to use the pulley weights to a maximum advantage in the P.R.E. Application.

Where specific muscular strength and flexibility are the program objectives the use of pulley weights can contribute largely to the reaching of the planned goals of recovery.

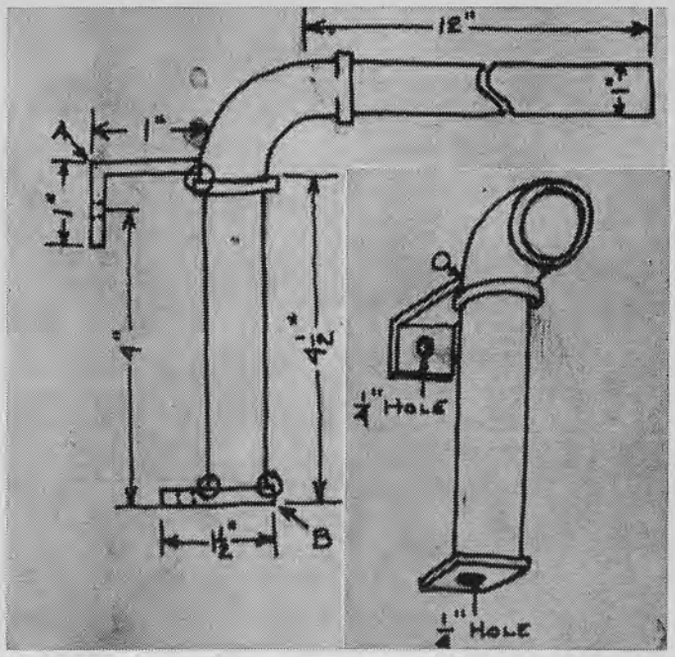
The following diagram and pictures are given here, in substitution of discussion, on construction methods as well as utility methods for the apparatus attachment under consideration. Figure No. 1 gives, in detail, the materials needed for the single unit construction.

With the increased utility of the apparatus greater emphasis is needed for safety consideration. The following factors should be considered as a safety precaution:

(1) See that the apparatus is securely attached to the walls.
(2) Check all ropes and rope attachments to withstand the stress of additional weight load in operation.
(3) Where rope endings are attached to apparatus handles by a single spreading device — remove the wedge and tie or knot the rope so it will not pull free while in use.
(4) Periodically check the rope for points of fraying or weakening where it is consistantly drawn over a pulley.
(5) Check pulley swivels fo rsecurity.

The increased utility of the pulley weight will offer new opportunities for their use in Progressive Resistive Exercise, when the foregoing additions are made. The added functional use of the apparatus will enable greater program use as well as add to the motivation of the person in utility of the apparatus. Results are produced by challenge — and the apparatus now can be made to challenge increasing ability.

1. "A" is a piece of angle iron welded to the L pipe at the spot indicated by O.
2. "B" is a piece of flat iron welded to the bottom of pipe at point indicated by OO.
3. Center of top attachment hole to bottom plate is 4". This is distance determined by the point of attachment on apparatus.
4. Bolt to support attachment to top plate of weight rack of Pulley Weights are ¼" by ¾". Lock washers are used.
5. A ¼" hole is tapped through the two parts of the apparatus, as indicated by Fig. No. 2 for weight rack attachment to Pulley Weight pan.



¶ - - - + - - # § - - ! !

Medical writing*,‡,g--d is getting so documented[1] and tedious[2-8] that [9] we wonder[10-12] if a writer[13] might not defeat his purpose as an author[14] by scaring off his readers.#

It is commendable¶ for the journalist to comfort[15-17] his public by assuring it# that he has actually read the references himself [1, 12, 13]. However, a certain vertigo[3a, b, g] must be induced in the cerebrums of innocent[11] subscribers by the whirring visions of never ending§ little figures looking like flyspecks[18-27] on his eyeglasses.■

May we suggest that less of these references would greatly facilitate the reading process. The defenseless reader who after all only wants to learn what the heck is in the article should find this unadorned type of writing much more relaxing. Ah, yes, very relaxing. S-o-o-o-o relax-z-z-z-z.

*,‡,g_b An ungrammatical term by which the author means to convey writing confined to subjects dealing with medicine. See previous articles by author.

If any.

¶ The author takes no responsibility for this statement.

11 a relative not an absolue. Designation shown by the equation K-9÷3 = b over 6i.

§ Really, a rather careless choice of adjectives.

■ Presuming he (or she) wears them.

1 McGonigle vs. State of Massachussetts, VL3, 1928.

2-8 London, Jack, Law of The Wild, pp. 137.

9 Personal communication with the author.

10-12 Quoted freely from F. Ebenius.

13 Freud, S., Strange Occupations I Have Known, p. 34, parag. 7, line 2, 1917.

14 From Meal to Meal in Greenwich Village, Author unknown.

15-17 To or Not To: A Study in When and How Much, Edited by Proctor and Gamble Radio Enterprises, Inc.

18-27 Foosh, F., und Hottentot, Klinische Wochenschrift fur Wienerschnitzel, 124:32-67, August, 1954.

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THE MIAMI BEACH STORY

The streamlined beauty and lush tropical glamour of Miami Beach seems a strange and fantastic dream concocted from the dense and swampy wilderness of the island less than a half century ago.

The story of Miami Beach is filled with adventure. About the year 1400, almost a hundred years before columbus set sail for America, an Indian town flourished in the mangrove jungle that is now Miami Beach. The town was built and occupied by members of the Tequesta tribe, the aboriginal lords of the lower east coast of the Florida peninsula. They were related in both language and customs to the Calusa, the principal tribe of southern Florida during the Spanish occupation of the country.

In 1567, Don Pedro Menendez de Aviles built a Spanish mission here to Christianize the Indians, establish a port of call for his ships and exploit the area for the benefit of the Spanish Crown.

In 1850, a handbook of Florida described the Miami Beach section as inaccessible to the ordinary tourist and unopened to the average settler. The island was unsurveyed and inhabited only by a few of the remaining Seminole Indians who had supplanted the Tequestas and Calusas and visited only by the most enterprising and adventurous of hunters and explorers.

Miami Beach was still a waste of palmettos and mangroves in 1870 when Henry B. Lum of Ohio and his son Charles visited the island. A sand ridge running along the ocean side was covered by a tangled mass of sea grapes. The island was a haven for rattlesnakes, mosquitos, wildcats, raccoons, 'possum, rabbits and bears. The Lum's seeing a few cocoanut palms growing along the beach began with enthusiasm to plan a tremendous cocoanut plantation here, bought a large tract of beach land from the government at 35 cents an acre and returned north. They then interested Ezra Osborn and E. T. Field of Middleton, New Jersey, in the venture and the latter, with the financial backing of some of their local friends, formed a company

(Continued on Page 16)

More About Miami Beach —

(Continued from Page 15)

of their own, buying from the government a 65 acre tract of land which included all of what is now Miami Beach north of the Lum holdings which extended south from 14th Street.

The Lum's, Osborn and Field's chartered an ocean going schooner, recruited 25 men from life saving stations along the Jersey coast and, with mules, equipment and provisions, anchored off the shore of Miami Beach in the winter of 1882. There were no docking facilities and the entire outfit had to be landed through the surf. The mules were heaved overboard and the men swam ashore with them. Provisions and equipment were loaded into lifeboats and taken to the beach, coconuts for planting were imported from Trinidad, Nicaragua and Cuba and by 1885, over 300,000 had been placed in the soil.

Wild rabbits that infested teh swamp ate the tender shoots of teh young plants almost as soon as they appeared above the gorund. Those trees that did live to maturity bore fruit, but the yield was only a minute percentage of that which had been anticipated. The small fortune invested in the venture soon disappeared and with it the hopes and interest of its supporters. The first attempt to develop Miami Beach failed.

John S. Collins, New Jersey merchant and horticulturist, was a member of the group that had invested in the enterprise. Mr. Collins came to Miami Beach in 1896 to check on his investment and found, of course, a dismal failure. He felt, however, that the land had unlimited potentialities and before returning to his business in New Jersey began dickering for land on the island. After several years of negotiation, Collins bought Osborn's share of the property and became Field's partner.

In 1907, Collins and Fields began the tremendous task of clearing the land of the massive mangrove roots and scrub palmettos in order to plant a grove of avocados. The embroyonic grove was situated about 1000 feet from the ocean, was a mile long and about 700 feet wide. In the summer of 1907, almost 3,000 avocado trees were planted. Salt and spray blowing from the ocean killed the firts season's crop, and Field, fearing a second failure, sold his Miami Beach holdings to Collins, who became the sole owner of 1,670 acres of oceanfront land.

To protect his fruit from the salt spray, Collins planted a screen of Australian Pines, (Many of these pines still stand and border Miami Beach's lovely Pine Tree Drive), and soon had a thriving grove of avocados, mangoes and common garden vegetables. The Collins Canal was begun in 1911 to facilitate transportation for his produce, which, by now, amounted to approximately 18 carloads a year out of the swamps of Miami Beach.

Upon hearing of the canal, Thomas J. Pancoast, Collins' son-in-law, came down to find out for his skeptical family just what was going on at Miami Beach. He, too, became enthusiastic and listened with interest to Collins' even greater dream of a bridge which would span the two and one-half miles of Biscayne Bay separating the then bustling city of Miami on the mainland from his extensive holdings on Miami Beeach.

Soon Collins and Pancoast began to dream of a city to replace the mangroves that surrounded their grove. Collins decided to develop part of his acreage for residential property and on June 3, 1912, formed the Miami Beach Improvement Company, with Pancoast as secretary, treasurer and manager. Two days later the Ocean Beach Realty Company was chartered. This company, headed by John Newton Lummus, began developing teh area south of 14th Street, which had been part of the Lum holdings.

In July, 1912, actual construction was begun on the Collins bridge and the project progressed steadily until Collins and Pancoast ran out of capital.

Carl G. Fisher, who with his partner, James Allison, had amassed a fortune from the Prest-O-Lite Company in Indianapolis and who had built the famous Indianapolis Speedway, becace interested in the development of Miami Beach as a great seaside resort city and lent Collins $50,000 to complete his bridge. On June 12, 1913, the bridge was formally opened to the public.

Fisher had received as a bonus for his loan 200 acres of land running through the island and, after forming the Alton Beach Realty Company, purchased another 260 acres. He later combined with Collins and Pancoast in the Miami Beach Bay Shore Company which was formed to buy up even more land for development purposes.

These Miami Beach pioneers then began clearing and filling in the land upon which their dream resort city would stand. They employed an army of men, pumping boats, dredges, barges and set an 18-inch pipeline over a mile long before they succeeded in pumping enough sand from the bottom of Biscayne Bay to cover the bare mangrove roots on the land. After the fills were completed, loads of rich soil were brought in from the Everglades, grass was sown and trees, shrubs and flowers transplanted to the Island. Concrete bulkheads were put in and streets were laid out and paved.

Fisher, the master showman and most ambitious of these first developers, installed an electrical power plant and water system. He built golf courses, polo fields, bathing casinos and the largest hotels and used every means at his command to publicize these attractions. Fisher launched a nextensive and far-reaching campaign advertising the climate, beauty, and vacation facilities of Miami Beach and thousands of tourists came pouring in to be enchanted by this new resort. California gold rushes and southwestern oil booms faded into insignificance with the freak population trek to Miami Beach in the early 20's.

Miami Beach was incorpirated as the Town of Ocean Beach in 1915 and as the City of Miami Beach on May 21, 1917. The Miami Beach Chamber of Commerce was organized by C. W. Chase, Jr. in 1921 and Thomas J. Pancoast became its first president. The Chamber's first office was under a beach umbrella at the southeast corner of Fifth Street and Alton Road.

In 1920 Miami Beach had an assessed valuation of $225,000 and a permanent population of 644. By 1925, the assessed valuation had jumped to $5,500,000 and the population to 2,342. In 1950, the assessed valuation is $283,891,200 and the permanent population by the U. S. Census, 46,282.

Miami Beach's colorful palms and shrubs, long strips of bathing beaches and temperate tropical climate, along with the vision and perseverance of her pioneers have fulfilled the promises of this new city in the sun.

Logan, Inc. . . . MAKES THE MOST COMPLETE LINE OF

TRAINING ROOM SUPPLIES AND EQUIPMENT

WHIRLPOOLS

MODELS • PRICES • SPECIFICATIONS

'GIANT' A-1 (stainless Steel) $435
48" long x 21" wide x 29" deep

OLYMPIC A2 (Stainless Steel) $435
41" long x 21" wide x 29" deep

CHAMPION A3 (Galvanized) $325
41" lon x 21" wide x 29" deep

CASTERS (Easy Mobility) $49.50
Ball bearing (not for 'Giant')

LOGAN WHIRLPOOLS

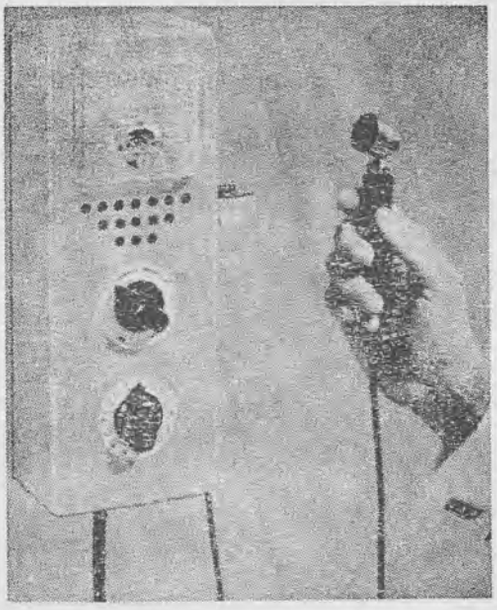
Have These Outstanding Advantages

Circulates the same water at the rate of 3,000 gallons per hour.
Adjustable water ejector. • Heavy 20 gauge steel. • Complete with adjustable sling seat.
Aerated water. • Superior design. • Non-corrosive materials. • Thermometer.
Year guarantee on parts and workmanship.
1½" floor drain speeds emptying.
Spring lifts Westinghouse motor.
Motor and ejector beautifully chromed.
Hot-dipped CHAMPION bath stands rugged use. Finished in gray hammertone enamel.
Approved by an Official Electrical Testing Laboratory.

LOGAN DUMMIES

Reduce those crippling injuries by using Logan Dummies All Season.
Largest and longest inflated dummies.
Either Dummy can be held with both hands or with one hand and forearm.
Lightweight, fit body contours.
Made of waterproof canvas, with convenient zipper.

Block'n Tackle Dummy $14.95
Saf-T-Air Dummy $16.95



SONICATOR

(ULTRASONIC THERAPY)

Space saver — less than a foot in length. Portable — take it on trips, total weight 4 pounds. Ample reserve power and accurate output. FCC type approved. Guaranteed one year against defective parts and workmanship. One knob control — easy to use. Automatic treatment timer. 10 total watts of one megacycle ultransonic output from a 5 square centimeter crystal. (Pencil-like). Handle with adjustable, waterproof, one inch diameter transducer . . . which fits all body contours. Realistically priced:

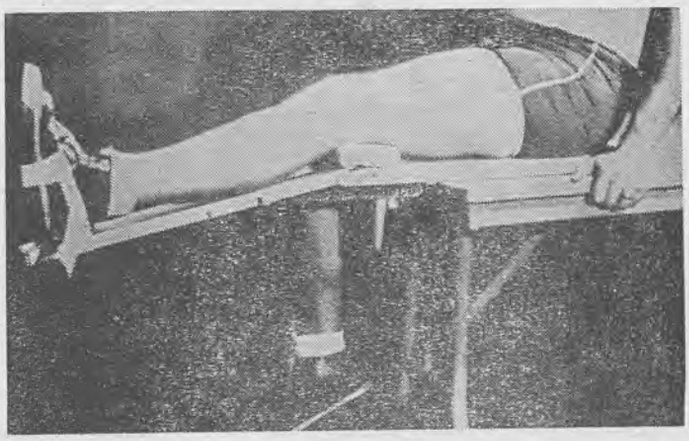
$199.50

LOGAN KNEE STRENGTHENER

Guaranteed to Develop Strength (Pat. App. for)

A therapeutic exerciser, utilizing spring resistance, for the development of strength in the prevention or rehabilitation of knee disabilities. This university research designed device, provides resistance to the quadriceps muscle through a full range of motion. The resistance is varied by changing combinations of springs. Easy-to-follow exercises included. No heavy weights to pull joint apart. Padded for extra comfort. Easy to operate.

Shipping Weight 15 lbs. — Each $34.95



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Logan, Inc.

4966 Eagle Rock Boulevard
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ATHLETIC TRAINERS SUPPLIES AND THERAPEUTIC EQUIPMENT

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"SPRAHALANT"

Used to relieve nasal congestion due to common cold

AT HOME:

... an aid for the entire family

IN HALFTIME ROOM:

...helps to bring players out revived and refreshed

SPRAHALANT IS A COMBINATION OF MENTHOL AND BENZOIN EXTRACTIVES IN EASY-TO-USE AEROSOL FORM

For instant results, use a 3 to 5-second spray in the average room. Spray toward ceiling, not in the players' faces.

This 3 to 5-second spray provides, instantly, more nasal congestion relieving benefits than hours with cumbersome, old-fashioned "Benzoin Cookers" that are plugged into the wall.

The Menthol vapor will last for hours when sprayed onto a handkerchief or Kleenex. Allow 2 to 3 minutes for solvents to evaporate, and you'll have a mighty inexpensive, individual Menthol inhaler—good for an entire evening.

Sprahalant is an aid for those whose breathing is hindered by adverse weather conditions, or on dusty courts or over-heated rooms.

Each 6-oz. can contains 75 home or training room sprayings, or 200 applications on a handkerchief

SPRAHALANT WAS DEMONSTRATED AT THE 1957 NATIONAL TRAINERS CONVENTION IN LINCOLN AND, IN OUR EXPERIENCE, RECEIVED THE MOST ENTHUSIASTIC RECEPTION EVER ACCORDED A TRAINING AID OR HOME TREATMENT