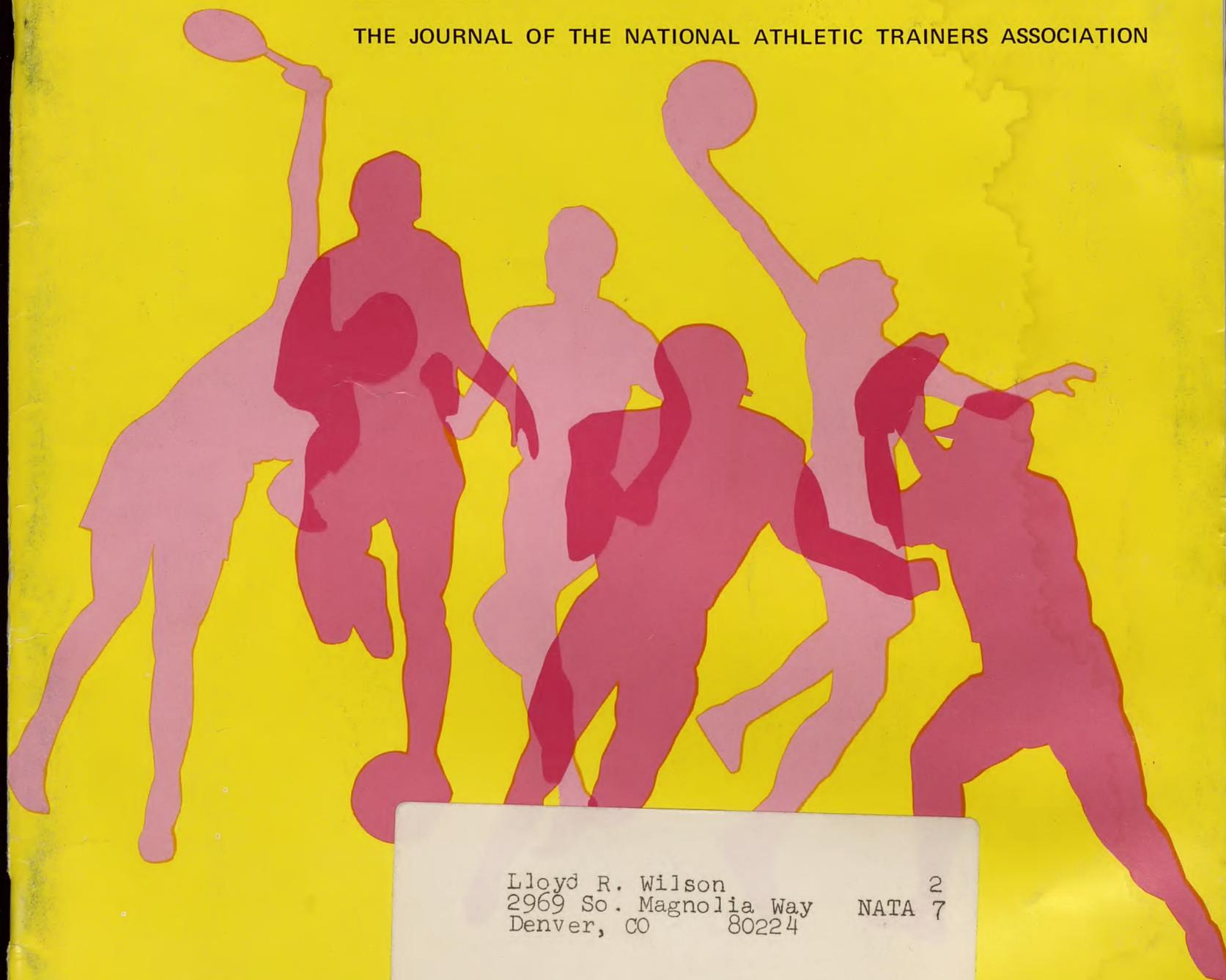




# ATHLETIC TRAINING

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

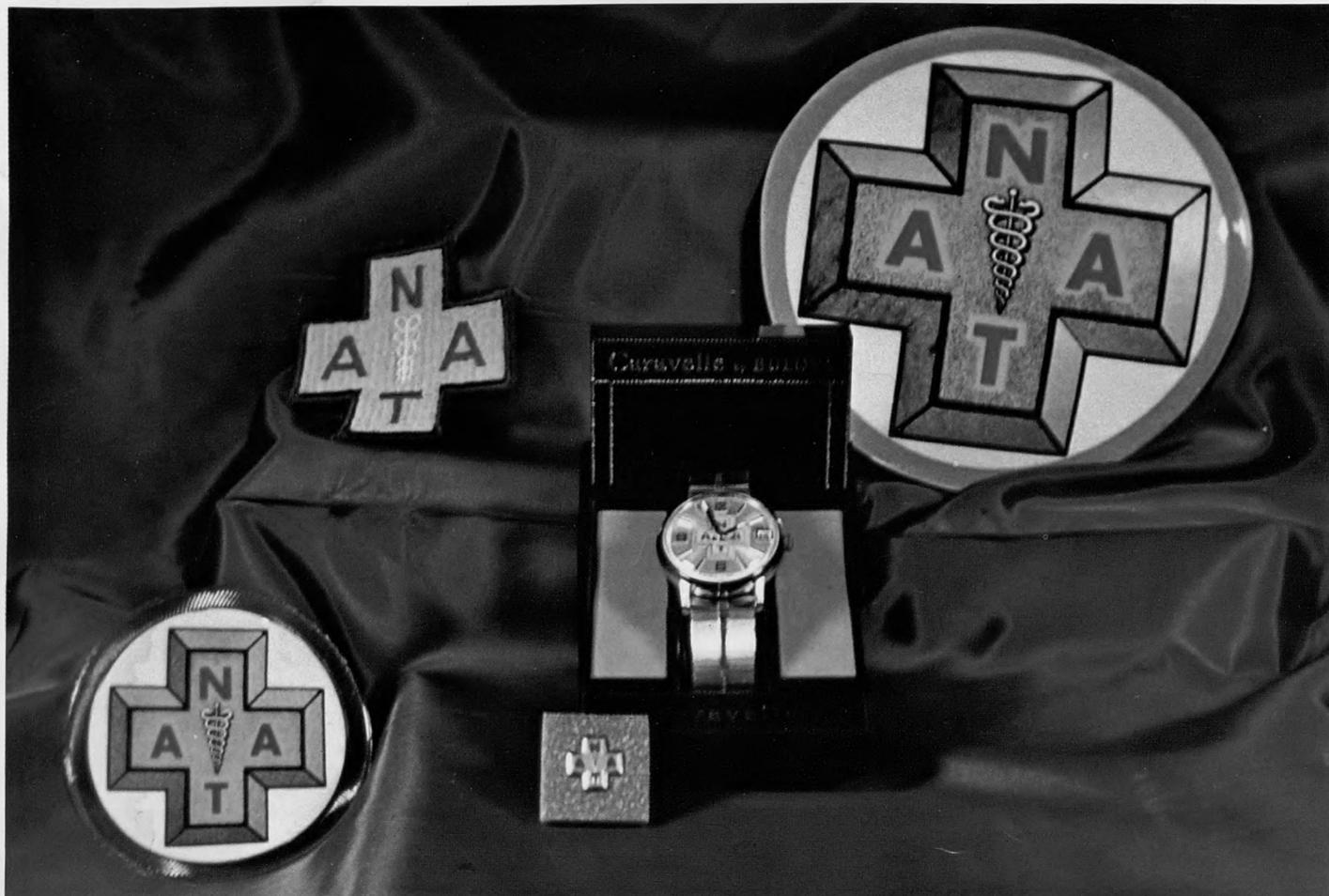


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The Effects of Hypothermia on Inflammation and Swelling  
The Organization and Administration of An Athletic Training Program  
The 1975 Schering Symposium on Musculotendinous Injuries  
Injury Patterns During The First Three Days of Football Practice  
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Volume 11  
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# INTRODUCING

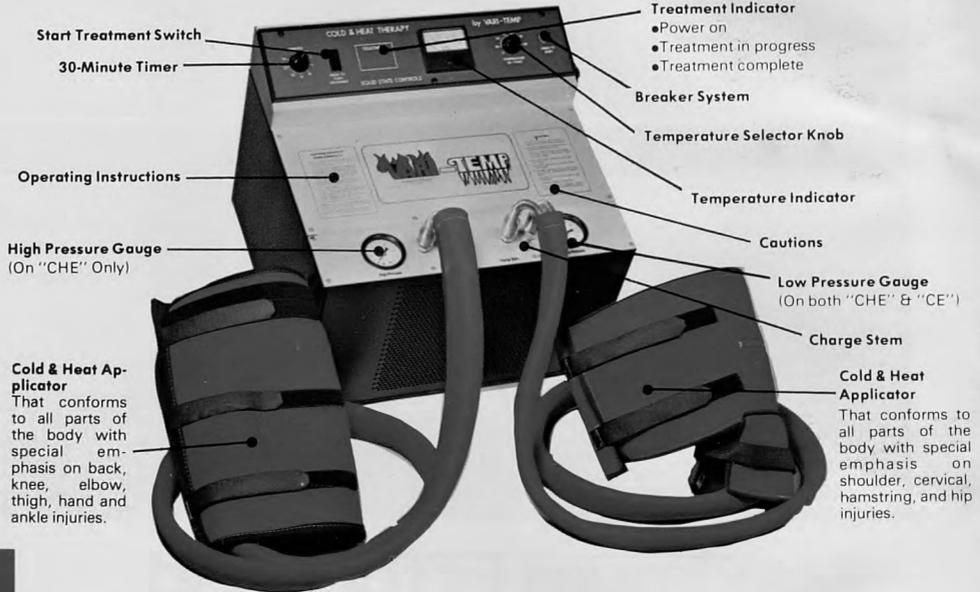
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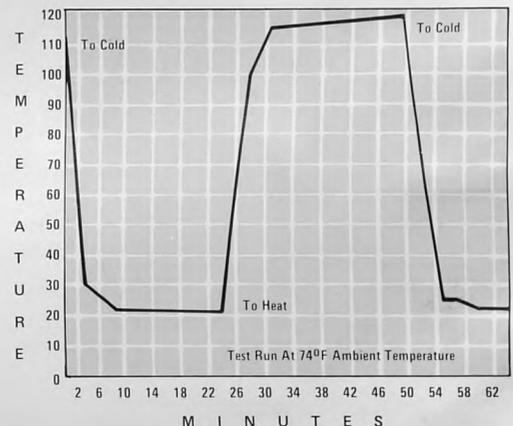
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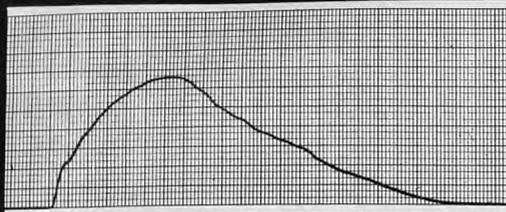
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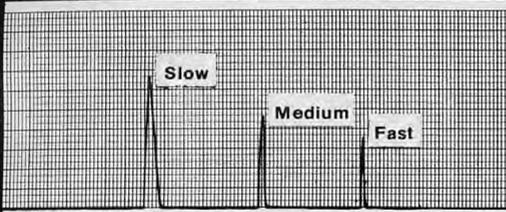
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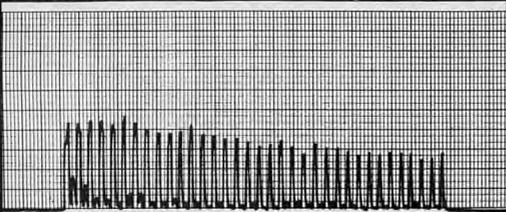
uninjured limb



Test at slow contractile speed to measure strength throughout range of motion.

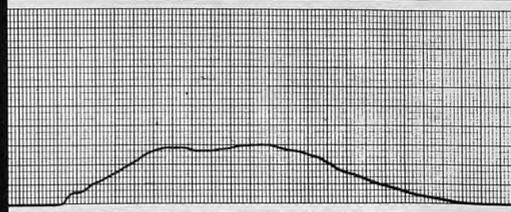


Test of muscular output at slow, medium, and fast contractile speeds.



Test of muscular output over a series of repetitions at medium speed.

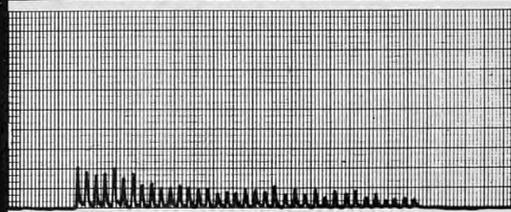
injured limb



Note 58% strength deficit and abnormal shape of curve



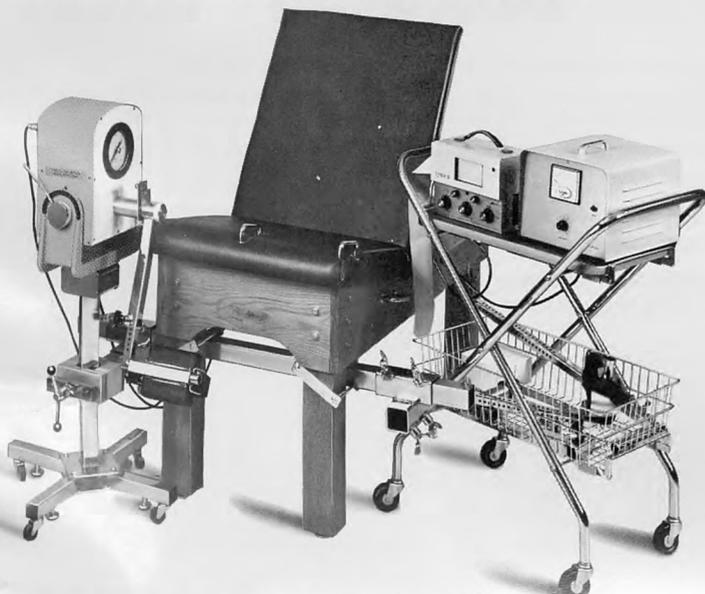
Note 80% power deficit (fast speed) as compared to 58% strength deficit (slow speed).



Note fatigue rate is almost double — 78% decrease compared to 45% decrease in equal no. of repetitions.

(Actual chart recordings shown 1/2 size.)

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# ATHLETIC TRAINING

The Journal of the National Athletic Trainers Association

Volume 11

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## FROM THE PRESIDENT'S DESK

Dear NATA member,

I am looking forward to seeing you at the 1976 National Convention in Boston. Boston should have a great deal to offer in this Bicentennial year.

Recently there have been articles published and concern expressed by NATA members regarding a number of medico-legal problems. The NATA Board of Directors has established an Ad Hoc Legislative Committee to study these problems and to make recommendations. This committee will be meeting in March and will make recommendations for the June Board Meeting.

In June, 1976 Mel Blickenstaff will resign as the chairman of the Recruitment Committee. Mel has given NATA many long years of service on this committee and on the Professional Education Committee. From the Board of Directors and the NATA membership, a special thanks and expression of our gratitude to Mel.

The Temple University Center for Sports Medicine and Science will be conducting a National Football Head and Neck Injury Registry. This will be done in conjunction with the NATA Research and Injury Committee. A scientific exhibit will be developed for the 1976 convention. I urge all members of NATA to complete the forms which will be mailed to you and to provide the necessary information. As an association and a profession we can make a meaningful contribution to the reduction of these severe injuries.

In the near future Maginnis and Associates, professional insurance administrators and consultants, will be offering NATA members different types of insurance plans. Study these plans and their rates to see if they can benefit you as an individual member.

Please, if you have any suggestions for the Board of Directors, contact your District Director. Have a good spring sports season.

Sincerely,  
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Frank George  
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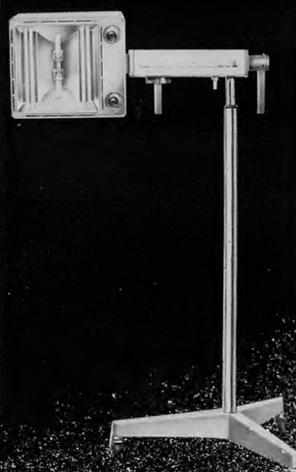
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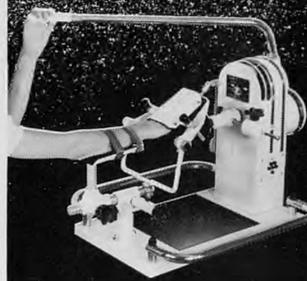
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# The Effects of Hypothermia on Inflammation and Swelling

By Kenneth Knight, A.T.,C.

There seems to be no question about the role of ice in the immediate treatment of athletic injuries. However, except for the very superficial explanation that it controls swelling, the reasons for its use are apparently not understood. This paper will attempt to review the inflammatory response as it pertains to athletic injury and discuss possible reasons for the beneficial use of ice in athletic medicine.

## *Inflammations*

Inflammation, the body's response to injury, is divided into two major phases: injury and repair, each of

---

*Kenneth Knight is the former Head Trainer at Weber State College in Ogden, Utah. He is presently a Doctoral Candidate in the Dept. of Health and Physical Education at the Univ. of Missouri-Columbia, where he is also a Graduate Assistant in the Human Performance Lab.*

which is described by a number of subphases. Although injury and repair are not separate in vivo, it is beneficial when discussing inflammation to separate its component parts and consider each as autonomous events.

The injury or insult phase is that portion of the inflammatory response which constitutes impairment of tissue structure or function. This phase includes the immediate tissue response to an insult. The repair or resolution phase is much longer than the injury phase and incorporates those changes which are concerned with healing. For example, when a person sprains an ankle the injury phase includes the initial trauma, the stretching and tearing of the tissues (ligaments, tendons, nerves, and blood vessels), and the swelling. The repair phase includes removal of the swelling and replacement of the damaged tissues with new viable tissues.

The basic character of the immediate inflammatory response to injury is almost always the same regardless of the location or nature of the injurious agent (28, p. 57). Chemical, metabolic, permeability, and vascular changes will all occur; followed by some form of repair. However, the degree of these responses will vary due to differences in, and dose of, the injurious agent.

## *Chemical and Metabolic Changes*

Except in the case of trauma to the ultrastructure (which occurs in athletic injury), cells sustain biochemical injury long before they undergo structural changes. These changes can best be illustrated by the cellular response to hypoxia.

Hypoxia first effects the cells aerobic respiration and energy producing functions. Anaerobic processes take over to provide energy for the cell, but their effects

are not long lasting. The amounts of ATP being generated steadily decrease, and soon the cell does not have enough energy to maintain its membranes and intercellular structures. The structures begin to breakdown, and eventually cellular death ensues (28, p. 26).

#### *Permeability Changes*

When cells degenerate or die they release substances capable of inducing vascular changes. One of these substances released is histamine, which increases the permeability of small blood vessels. The endothelial cells which make up the vessel wall seem to contract thereby pulling away from each other and leaving sizable gaps through which fluid and blood cells can escape (19, p14, 35). In most athletic injuries the torn vessels allow hemorrhage in the immediate area, while the increased permeability occurs in non disrupted vessels in the injury area and in vessels on the margins of the injury (28, p. 60).

In the non injured state, plasma and slight amounts of blood protein escape the vascular system. All that escapes is either directly reabsorbed back into the vascular system or returns via the lymphatic system. With injured vessels however, the increased permeability allows abnormally large amounts of plasma proteins and colloids, as well as excessive amounts of water, to pass into the interstitial spaces (22, p101). Since the major force for causing reabsorption of fluids into the capillaries is provided by the colloids (colloid osmotic pressure), their effect is now reversed. Rather than pulling fluid back into the capillaries, their presence outside the vessel causes additional fluid to be pulled out of the vessels. Edema or swelling results.

#### *Vascular Changes*

The purpose of post injury vascular events is to mobilize and transport defense components of the blood to the injury and secure their passage through the vessel wall into tissue spaces (22, p99). First, blood flow slows down. This allows the white cells to fall out of the streamline and move to the margin of the vessel. They tumble along the margin for awhile and then stop and adhere to the vessel wall and perhaps to other white cells that have stopped. Eventually the vessel wall will be paved with white cells.

The motile white cells then escape through the vessel walls into the

tissue spaces. Once outside the vessel they begin emigrating to the center of the injury site. As they arrive at the site of the injury the white cells start to remove the irritating material by phagocytizing (literally eating) the particular materials. The first white cells to arrive at the injury site are neutrophils which normally destroy bacteria. Since there is no bacteria with most athletic injuries (sprains, strains, and bruises) the neutrophils just get in the way and die. However, macrophages, the principle scavenger, follow behind the neutrophils and begin to phagocytize neutrophil carcasses, cellular debris, fibrin, red cells, and anything else that is in the way or begin repair (19, p23).

#### *Repair*

The repair phase will not be discussed except to say that once the inflammatory agent and/or inflammatory debris have been destroyed or removed, repair begins. Clean-up by the macrophages and repair occur simultaneously, although enough of the hematoma must be removed to permit ingrowth of new tissue. Thus the size of the hematoma or amount of exudate are directly related to the total healing time (8, 23, 28, p92). If the size of the hematoma is minimized healing can begin earlier and the total healing time will be decreased.

#### *An Athletic Injury*

An athletic injury causes both direct and secondary injury. Trauma, whether due to a direct blow (a bruise) or to stretching and tearing (sprains and strains), results in direct damage to cells of structural (muscles, tendons, and ligaments) and associated tissues (nerves, capillaries, and blood vessels). The torn vessels allow direct hemorrhaging into the interstitial spaces of the injured area. The cellular debris and red blood cells organize to form a hematoma. Enzymes from the damaged cells cause the inflammatory response in the tissues on the margin of the central injured area (20, 35).

The inflammatory induced vascular changes (primarily stasis) along with the disrupted capillary system bring on secondary injury. With the decrease in blood flow to the area there is not enough oxygen for the tissues that escaped disruption by the primary injury. The result is hypoxic injury: failing ATP production, metabolic acidosis, decreased pH, membrane failure, and finally

necrosis or death (28, p26).

#### *Effect of Hypothermia on Inflammation*

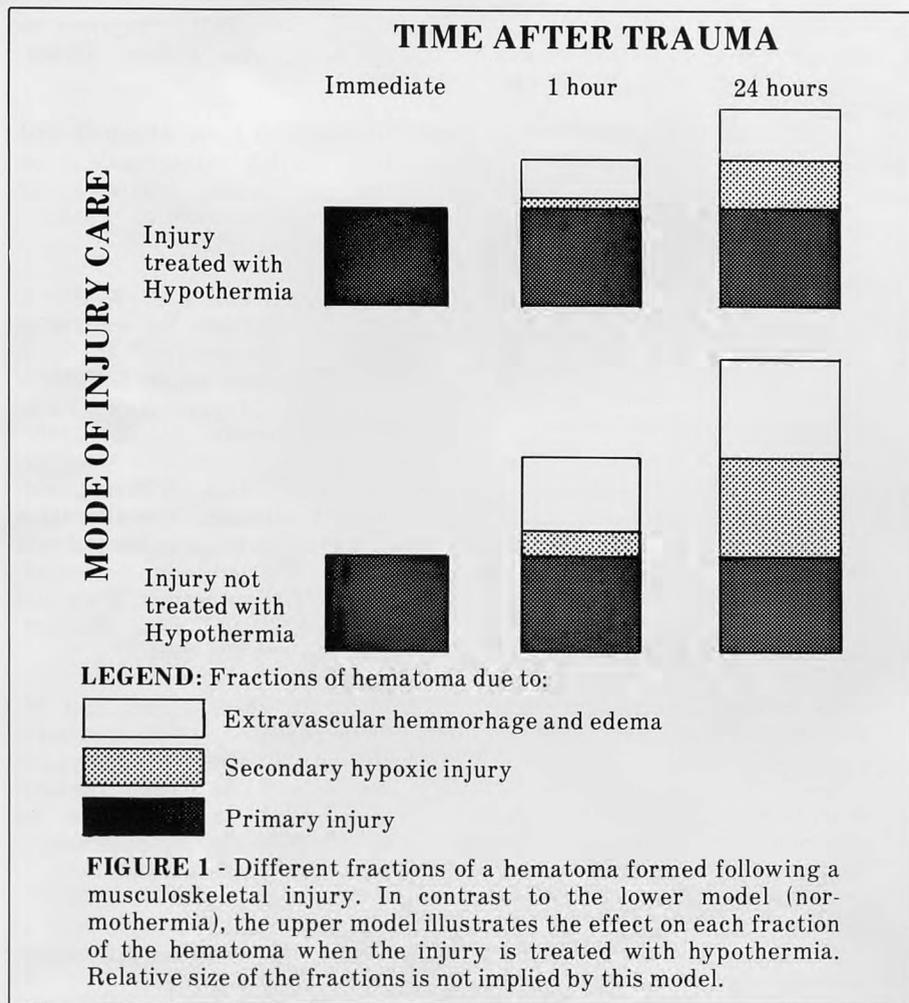
Ice is almost universally used for the immediate treatment of injuries in athletics (29). Many authors (3, 31, 32) have written that this is to control swelling, although they haven't gone into detail about how it acts.

Three reasons seem plausible to this author to at least partially explain the effect of ice in controlling swelling: 1) cold increases blood viscosity which decreases blood flow (12), 2) cold, down to 10°C, causes vasoconstriction which also decreases blood flow (7,25), and 3) cold caused vasoconstriction decreases vascular permeability by drawing the vascular wall closer together. These events tend to minimize the hematoma formation, which means there is less debris to be removed and as discussed earlier, the repair phase will begin earlier.

But what about the inflammatory process per se? Does cold alter it in some way that is beneficial to healing? No direct evidence has been found to answer this question, but research with traumatized tissue and burns gives data that may point to an answer.

Blalock (4) experimentally traumatized 54 dogs using blows with a blunt instrument to induce a lethal soft tissue injury in the hind leg. After the injury he treated 25 dogs with a rubber hot water bottle, 29 with ice packs, and then measured how long the dogs lived after the lethal injury. He did not report the respective temperatures but he did indicate that the hot water caused the surface temperature in the injury area to increase 7.7°F (4.2°C) and the ice caused a decrease in temperature of 47.4°F (26.3°C). The dogs treated with cold lived more than twice as long as the heat treated dogs. Duncan and Blalock (11) traumatized animals by putting them in a mechanical press for periods of 5 hours. They found that cold applied during the time of the trauma exerted a definite protective influence, whereas cold applied after the five hour period had no effect.

Manson et al (21) immersed rat tails in 80°C water for five seconds to produce a standardized burn. Half of the rats were immediately treated with 10°C immersion for two hours, half were untreated. There were no differences in the two groups of rats after 24 hours, however drastic differences developed later. All the uncooled rates suffered partial or complete loss of their tails, whereas



the cooled rats healed completely with no loss of substance. Others (12, 17, 18, 26, 34) have produced burns which resulted in 100% mortality to their control rats (those untreated after the burn). In rats treated with hypothermia (in the form of water ranging from 4°C up to 25°C) mortality was greatly reduced. Even though 25°C (77°F) is greater than room temperature, water is a better conductor of heat than is air. Therefore, 25°C water will cool the body, whereas 25°C air will not.

There are two possible explanations for the reduced mortality as a result of cold applications. Either the cold altered the inflammatory reaction or it somehow reduced the amount of injury. (See Fig. 1) Research by Brooks and Duncan (6) seems to disprove the first assumption. They administered three sets of two wounds to the backs of rabbits. Each set of wounds contained a subcutaneous injection of oil and turpentine and next to it a subcutaneous injection of a culture of staphylococcus aureus. One set of wounds was untreated, one treated with a 40°C water bottle, and one with

a 10°C water bottle. After 24 hours the inflammatory response was greatest in the wounds treated with 40°C and almost non-existent in the 10°C treated wounds. Results were accentuated after 48 hours and led the investigators to postulate an arithmetic proportionality in the inflammatory response between 0° and 40°C. However, 24 hours after the treatments were discontinued the wounds that had been treated with cold appeared much as the untreated wounds had appeared 24 hours after the initial injury. Thus the cold only delayed the inflammatory response. This would not explain the reduced mortality that resulted from treating burns with cold. This is in agreement with data collected by Weidman and Bringham (33) which indicated that cold water was successful in reducing damage done by burns, but that this success was not due to an alteration of the inflammatory response.

The beneficial effects of cold could be reducing the amount of injury. It appears that this is done by reducing or even retarding the secondary hypoxic injury. It has been shown that hypothermia reduces the cellular energy needs (10,16,30), thereby

reducing the tissue requirements for oxygen. This would preserve the tissue function during vascular collapse.

In dogs immersed in 17°C water the oxygen consumption has been as low as 15% of normal (14,15,27). Brooks and Duncan (5) studied the duration of anoxia necessary to produce gangrene at various temperatures, at 40°C it took 3-4 hours, and at 15°C, 96 hours. This physiological reaction was explained by Delorme (9), "Cooling of the blood stream appears to be a practicable method for lowering the respiratory activity of the cell without depressing the function of essential tissues below a level compatible with life . . . Cooling brings about what might be termed temporary degradation of the more delicate higher organism to a level of the more resistant lower organism, and in so doing enables it to withstand otherwise lethal ischaemia." In other words, the cooled tissue goes into partial hibernation.

Albin and associates (1,2) felt this was the reason they were able to reverse paralysis resulting from experimental spinal cord injuries in dogs (treated with 5°C water) and in monkeys (treated with 10°C water). They stated that the "mechanism by which hypothermia exerts its protective effect can be partially explained by the marked reduction in metabolic activity and demand of the cooled tissue." (1)

If the tissues in an injured area that escape destruction by the trauma are not "put into hibernation" by cold applications, their need for oxygen may be greater than the injured vasculature can supply. Consequently they undergo hypoxic injury. This secondary injury will add cellular debris to the hematoma, thus increasing the size of the hematoma and increase healing time.

#### Summary

The use of hypothermia, in the form of cold applications, on acute traumatized soft tissues is beneficial. This beneficial effect appears to be in limiting the magnitude of injury rather than beneficially altering the inflammatory reaction per se. Two factors act to reduce the magnitude of injury.

1) Hypothermia controls the size of hematoma formation thereby decreasing the amount of waste material that must subsequently be removed from the injury site. This is accomplished through vasoconstriction and increased blood viscosity, both of which slow down

blood flow. With less blood flowing, less can escape into the damaged tissue.

2) Hypothermia reduces secondary hypoxic injury by reducing the need for oxygen in the tissues that survived the initial trauma. Thus the total amount of tissue damaged is less.

#### BIBLIOGRAPHY

1. Albin, M.S., R.J. White, G. Acosta-Rua, and D. Yashon, "Study of functional recovery produced by delayed localized cooling after spinal cord injury in primates," *J. Neurosurg.*, 29:113-120, 1968.
2. Albin, M.S., R.J. White, G.S. Locke, L.C. Massopust, and H.E. Kretchmer, "Localized spinal chord hypothermia," *Anesth. Anal.*, 46:8-15, 1967.
3. American College of Surgeons, *Early Care of Acute Soft Tissue Injuries*, New York: W.B. Saunders, pp217, 1960.
4. Blalock, A., "A comparison of the effects of the local application of heat and of cold in the prevention and treatment of experimental traumatic shock," *Surgery*, 11:356-359, 1942.
5. Brooks, B. and G.W. Duncan, "The effects of temperature on the survival of anemic tissue," *Ann. Surg.*, 112:130-137, 1940.
6. Brooks, B. and G.W. Duncan, "The effects of temperature on wound," *Ann. Surg.*, 114:1069-75, 1941.
7. Clarke, R.S.J., R.F. Hellon, and A.R. Lind, "Vascular reactions of the human forearm to cold," *Clin. Sci.*, 17:165-179, 1957.
8. Cosman, R., "Physiology of the skin," in *Physiological Basis of Rehabilitation Medicine*, ed. by J.A. Downey and R.C. Darling, Philadelphia: W.B. Saunders Co., 317-349, 1971.
9. Delorme, E.J., "Experimental cooling of the blood-stream," *Lancet*, 263:914-915, 1952.
10. Drucker, W.R., "Rationale for hypothermia in therapy of hypovolemia," in *Shock and Hypotension*, ed. by L.C. Mills and J.H. Moyer, New York: Grune & Stratton, 670-677, 1965.
11. Duncan, G.W., and A. Blalock, "Shock produced by crush injury," *Arch. Surg.*, 45:183-194, 1942.
12. Edwards, M., and A.C. Burton, "Correlation of heat output and blood flow in the finger, especially in cold," *J. Appl. Physiol.*, 15:201-208, 1960.
13. Ferrer, J.M., G.F. Crikelare, and D. Armstrong, "Some effects of cooling on scald burns in the rat," *Surg. Forum*, 13:483-487, 1962.
14. Freeman, N.E., "Influence of temperature on the development of gangrene in peripheral vascular disease," *Arch. Surg.*, 40:326-333, 1940.
15. Hegnauer, A.H., and H.E. D'Amato, "Oxygen consumption and cardiac output in the hypothermic dog," *Am. J. Physiol.*, 178:138-142, 1954.
16. Iung, O.S., and F.V. Wade, "The treatment of burns with ice water, phisohex, and partial hypothermia," *Indust. Med. Surg.*, 32:365-370, 1963.
17. King, T.C., and R.B. Price, "Surface cooling following extensive burns," *JAMA*, 183:677-678, 1963.
18. Langohr, J.L., L. Rosenfield, C.R. Owen, and O. Cope, "Effect of therapeutic cold on the circulation of blood and lymph in thermal burns," *Arch. Surg.*, 59:1031-44, 1949.
19. Macleod, A.G., *Aspects of Acute Inflammation*, Kalamazoo, Mich: Upjohn Co., pp44, 1973.
20. Majno, G., "Mechanisms of abnormal vascular permeability in acute inflammation," in *Injury, Inflammation, and Immunity*, ed. by L. Thomas, J.W. Uhr, and L. Grant, Baltimore: Williams and Wilkins Co., 58-93, 1964.
21. Mason, A.D., H.B. Williams, and F.M. Woolhouse, "Correlation of edema formation, hemoconcentration, and mortality in experimental burns treated with hypothermia," *Surg. Forum*, 15:469-471, 1964.
22. Morehead, R.D., *Human Pathology*, New York: McGraw-Hill, pp1676, 1965.
23. O'Donoghue, D.H., "Injuries to the knee," *Am. J. Surg.*, 98:463-476, 1959.
24. Ofeifsson, O.J., R. Mitchell, and R.S. Patrick "Observations on the cold water treatment of cutaneous burns," *J. Pathol.*, 108:145-150, 1972.
25. Polish, E., and C.C. Wolferth, "Special methods for control of internal hemorrhage," in *Shock and Hypotension*, ed. by L.C. Mills and J.H. Moyer, New York: Grune & Stratton, 652-654, 1965.
26. Poy, N.G., H.B. Williams, and F.M. Woolhouse, "The alteration of mortality rates in burned rats using early excision, hemografting, and hypothermia, alone and in combination," *Plast. Reconstr Surg.*, 35:198-206, 1965.
27. Race, D., E. Cooper, and M. Rosenbaum, "Hemorrhagic shock: the effect of prolonged low flow on the regional distribution of blood and its modification by hypothermia," *Ann. Surg.*, 167: 454-466, 1968.
28. Robbins, S.L., *Pathologic Basis of Disease*, Philadelphia: J.B. Saunders Co., pp 1595, 1974.
29. Ryan, A.J., "Technological advances in sports medicine and in the reduction of sports injuries," *Exer. Sport Sci. Reviews*, 1:285-312, 1973.
30. Shulman, A.G., "Ice water, a primary treatment of burns," *JAMA*, 173: 1916-18, 1960.
31. Slocum, D.B., "Treatment of football injuries," *Athletic Training*, 7:77-89, 1972.
32. Thorndike, A., "Frequency and nature of sports injuries," *Am. J. Surg.*, 98:316-324, 1959.
33. Weidman, M.P. and M.P. Bringham, "The effects of cooling on the microvascular after thermal injury," *Microvas. Res.*, 3:154-161, 1971.
34. Wilson, C.E., C.W. Sasse, M.W. Musselman, and C.A. McWorter, "Cold water treatment of burns," *J. Trauma*, 3:447-482, 1963.
35. Zweifach, B.W., "Microcirculatory aspects of tissue injury," *Ann. N.Y. Acad. Sci.*, 116:831-838, 1964.



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# THE STUDENT TRAINERS CORNER



## *Adapted Physical Education: One Related Field*

By Peter Koehneke A.T.,C.

A student trainer entering the athletic training field in college may be looking for a field which is related to athletic training in which to specialize or minor. One of the fields which is available to the trainer is adapted physical education.

Adapted physical education is as the name implies; physical education which has been adapted to meet an individual's specific needs. The need for an individual to have adapted physical education may stem from a variety of reasons. The student with a fracture can not participate in normal physical education activities nor can the student with the organic heart murmur. These two students are both in need of adapted physical education activities through which both may have their individual needs met. The fracture will heal and this student, in most probability, will be able to return to the normal physical education activities. The child with the murmur, on the other hand, will have to remain in the adapted physical education class for some length of time.

The needs of these two individuals are greatly different. The child with the murmur is in need of long term goals and a long term program of participation. The child with the fracture is not going to benefit from these same goals and must have an individualized set of short term goals and objectives until he or she may return to normal activity.

By now you are most likely wondering how this relates to athletic

training. The two examples which have been given do not scratch the surface of the conditions which require adapted physical education.

The mentally retarded, the blind, deaf, vascular diseased, the physically handicapped and the many more are also in need of adapted physical education. In this type of education, conditions are adapted to the individual by using specific exercises and activities. The athletic trainer "adapts" specific exercises and activities to the athlete during the rehabilitation process and also in specifically weak areas. An example of this would be an activity an athlete could perform effortlessly before an injury, such as lifting thirty pounds ten times with the knee extensors, will have to be adapted to the athlete after a knee injury. The adapting may be in reduction of the weight, reduction of repetitions or through the use of isometrics with no weights at all. There are short and long term goals set for this athlete on the adapted program. This is the athletic trainer's form of adapted physical education and occurs almost daily.

Through adapted physical education, specific exercises must be conformed to the individual's specific handicap or condition. These adapted exercises are then a valuable tool for the athletic trainer when an athlete cannot perform regular rehabilitation routines and the adapted exercises may then be substituted. These exercises then give the trainer a more complete background of exercises and routines to choose from during rehabilitation. Stretching is used in adapted physical education as in athletics to increase flexibility and prevent further tightening of muscles and joint structures. Braces, splints, crutches and

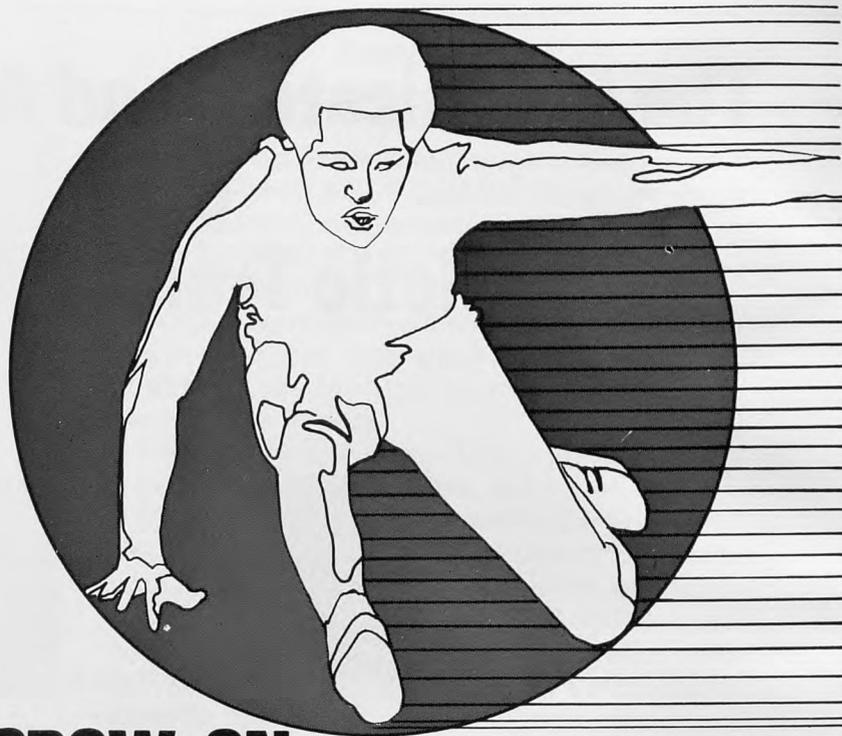
canes are a few of the appliances which are utilized by both of the professions. An excellent working relationship with the physicians involved with the individual is essential to the adapted physical education instructor as well as to the athletic trainer.

The preparatory courses in athletic training also tend to overlap with adapted physical education. Anatomy, physics, first aid, kinesiology and physiology are included in both areas of instruction. The adapted physical education required courses would then include method, practical experience, physical education, and special education classes which instruct the student in how to teach the mentally handicapped and physically handicapped.

Special Olympics are also included with the adapted physical education and special education programs in many schools. These mini-olympics are organized within the states with district and state meets being held. The state final eliminations then lead to the national Special Olympics which were held at Central Michigan University in 1975. The children are winners with the instructors also feeling a great sense of pride and accomplishment.

Adapted physical education is one of the related areas open to the student athletic trainer. The experience of adapting programs, exercises and equipment for these individuals may be applied to athletic training providing the trainer with valuable alternatives to many situations. Also the experience derived from helping this broad scope of individuals to overcome one of their handicaps is satisfaction within itself. •

*Peter Koehneke is currently with the Department of Public Health in Terre Haute, Indiana. He received his B.S. from Indiana State University in 1973 and his M.S. from the same school the following year.*



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# The Organization and Administration of an Athletic Training Program



By Hollis W. Powers, A.T.C.  
Plattsburgh S U N Y

A successful athletic training program is made up of a number of complex components. One of the most important of these components is organization and administration. The following is a discussion of the various factors which are included in the organization and administration of an athletic training program.

## *Philosophy*

It is most important to begin this article with a short philosophical discussion since this sets the tone for one's program. One's philosophy should be geared to getting the athlete into the training room whenever he is in need of help. No matter how good an athletic trainer is in technical ability, if the athlete who needs help does not come to him, the trainer is not fulfilling his duties and trust.

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*A native of Rhode Island, Hollis earned B.S. and M.S. degrees in physical education from the University of Rhode Island and West Virginia University respectively. In 1968 upon completion of the M.S. degree Hollis accepted a position teaching in the Providence, R.I. schools and became athletic trainer for Central High School. The following year he took on additional duties as athletic trainer for Classical High School in Providence and part-time at Roger Williams College in Bristol, R.I.*

*In 1970 he accepted the athletic training position at Lincoln University in Pennsylvania. Since 1973 Hollis has been the Athletic Trainer at Plattsburgh State University College, N.Y.*

The most important way to encourage the athlete to make use of the training room is to inspire confidence in yourself and your abilities as an athletic trainer. This is done most easily through the medium of "bedside manners." The number one component of a good "bedside manner" is the "laying on of hands." Nothing inspires more confidence in the athletic trainer by the athlete with an injury than if the trainer actually touches and looks at the injured part. Another important component is to ask questions. This shows the athlete that you are interested in his problem and care about him. Athletes are readily turned off by both trainers and doctors simply because the doctor or trainer never bothered to look at the injury. And of course it would seem difficult at best to make a proper evaluation of an injury without looking at it.

## *Atmosphere*

A clean, bright, and shiny training room is important to inspire confidence in the trainer. The athlete is more likely to enter a clean training room than a dirty one. Would you think much of a doctor who worked out of a dirty medical office? The training room is in a sense a medical facility in which one wants to discourage unsanitary conditions.

To create an interesting atmosphere one could decorate the training room with a wide variety of

sports pictures. *Sports Illustrated* is an excellent source of these. In addition, bulletin boards can be maintained on which are posted items of an educational and informative nature along with sports related cartoons, newspaper clippings about the school's athletic teams and team schedules. A radio could also be available for background music.

All of these measures help to make the training room a pleasant area for the athlete and encourage him to make use of the facilities.

## *Equipment*

The amount and type of equipment you have to work with is, of course, dependent not only on your budget but also on the size of your training room and of your sports program, particularly whether football is included.

Basic to any injury care program is ice. In a small sports program you may be able to get away with a refrigerator containing a large freezer compartment filled with ice cube trays. However, in a large program you will need an ice machine as well as a refrigerator.

In addition to ice one also needs heat at least in the form of a whirlpool supplemented with heat packs for the upper part of the body.

A table for taping and treatments will be necessary as will a storage cabinet or closet and a medicine cabinet. Also some type of weights



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should be available for injury rehabilitation.

There are more sophisticated pieces of equipment on the market which are desirable but the above items are basic. Of course the above all cost money and can be a problem for a limited budget. However, with a little resourcefulness one might be able to overcome this.

The tables and similar items could be made for cost by the school wood-working shop or maintenance department. Perhaps a local appliance dealer could be persuaded to donate a second hand refrigerator or ice machine. The school booster club might come up with funds for a whirlpool or hydrocollator.

### *Administrative Ability*

Administrative ability is co-equal in importance with technical ability for the successful athletic trainer. One can have sound technical ability and yet not be successful if one cannot deliver that ability to the injured athlete.

A very important component to good administration is the ability to get along with people. The athletic trainer in the performance of his duties will come into contact with a

wide variety of people including doctors, students, athletes, coaches, parents, other trainers, and administrators. If the athletic trainer has difficulty getting along with these people he will have a hard time getting the necessary cooperation needed to keep his program running smoothly.

The larger and more complex your sports program the more one will need good administrative ability.

### *Pre-Practice Organization and Administration*

The first thing to do before the season starts is to obtain a doctor in the community who will act as a team physician. He would be in attendance at necessary home contests and available for referral of injury problems beyond the trainer's scope. If you can't pay the team physician perhaps one could be enticed with a seasons pass to all your home contests.

Preferrably the team physician will be an orthopedic specialist or at least a doctor with an interest in sports. Orthopedists have the background to deal with the type of injuries most often generated by athletics. However, a doctor in another specialty will at

least be able to recognize problems and refer the athlete to a good orthopedic specialist.

The second thing to do is to find students and educate them as student athletic trainers. The number will depend upon the size of your athletic program. However, the more you have the more teams you can cover for home and away practices and games. Consequently, the better and more thorough your program can be. In any school there will be individuals who are interested in sports but who do not have the physical abilities to compete. They would like to be involved with the athletic teams. Individuals interested in medical careers might be another source of student trainers. This can be done on a volunteer basis or perhaps they can be paid through work-study or department funds.

*In large sports programs student trainers are a necessity to a successful program and not a luxury since a single trainer cannot possibly cover all the sports that should be covered.* Besides yourself, other sources of educating the student trainer are NATA approved workshops, the Cramer Products, Inc., Gardner, Kansas, correspondence course, Cramer sponsored summer workshops for the student trainers

located at various places around the country and numerous athletic training clinics around the country.

Meet with each team before the beginning of practice to introduce the athletes to your program. At this time have them fill out a health and injury history form. This will help you to spot any potential problems and either solve them for yourself or refer them to the team physician before injury develops. You will also have the information available for your files.

During the pre-season meeting you might also give each athlete handout sheets explaining training rules and regulations and the athletic injury insurance policy. In addition handouts of an educational nature could be included. Possible topics could be ergogenic aids and their effects on sports performance, and procedures for attaining general athletic fitness. It is most important for the trainer to educate his athletes to proper first aid measures and health care.

At this time you may wish to give the candidates diagnostic tests to determine such things as agility, strength, and endurance to detect any athletes with problems in these areas. Knee strength testing would be quite important for contact sports.

The next step is to have each athlete get a physical examination before practice starts. An athlete with a health problem is more likely to develop problems on the first day of practice than on the tenth. Too often candidates for contact and endurance sports are given a cursory examination at best. The doctor will decide what he will examine, but you can at least emphasize that you wish as thorough a physical as possible.

Be sure and formulate a precise procedure to follow in case of an emergency. Post the emergency phone numbers in plain sight and give a small card with these numbers to all student trainers and coaches in addition to keeping a card in each kit.

An inventory of equipment and supplies should be maintained to help you in ordering supplies each year. If you do not have a pre-season inventory, it will be difficult to tell how much of each item you might have used during the season and what you will need for the coming year with any degree of accuracy.

Last but not least you will need to put together a medical kit for use by the teams at home and away contests and practices. Maintain an individual kit for each team to eliminate confusion since different teams will often use different items. The trainer may also wish to keep his own kit for items

he does not wish to keep in the team kits.

#### *Day to Day Organization*

Pertinent information should be transcribed from the health history card each candidate fills out at the beginning of the season on an index card and kept in a file box. Each time an athlete is injured the necessary information should be put on his file card. This information is kept for future medical and legal references. A separate log should be kept for each treatment given to an athlete for the same reasons. In addition, this information could provide a basis for research data at a future time.

It is important to keep the coach informed of the status and progress of his injured athletes not only so that he may plan his practices accordingly, but also to achieve a good rapport with the coach. This is important if you are to have success with the athletes. One method which can be used to help inform the coach which athletes have injury problems is through the use of scrimmage vests. Any athlete who cannot tolerate full practice, but who may participate in some aspect of practice can be issued a scrimmage vest with a color distinctly different from that used by the team for practice. In this manner the coach can tell at a glance those athletes who have injuries which may limit them from contact, sprinting, etc.

On a limited budget it is important to keep track of all reusable equipment. If an athlete needs an elastic bandage, pad, brace, or similar items during the season have him sign the item out on a small piece of paper designed for this purpose. When the athlete no longer needs the item he returns it and is given the sign out slip. If he does not return the item, he pays for it.

At the end of each day the trainer should make out a list of each injury he wants to check the next day so that it will not be forgotten. At each game the trainer should keep a pen and pad handy to write down each injury as it happens no matter how insignificant it may seem at the time. This will remind him to check the injury after the contest is over.

#### *Home Game Organization*

As a simple common courtesy (treat others as you wish to be treated), contact the visiting team's trainer or coach before the game and offer any help they may need. Make ice available to them during the con-

test and you might also give them some form of refreshment. After the game check to see if they need any help. This improves the image of your program and school and increases the chances of a courteous reception when you visit their school.

For each home contest it is standard to have ice and a medical kit available on the floor or playing field. For the more violent sports such as hockey and football it would be wise to have a stretcher and splints available.

Hopefully you will have a team physician in attendance at least for the sports such as football and hockey.

#### *Away Game Organization*

As a coach I once worked with always said, "It is better to have and not to need than to need and not to have." You never know from year to year what conditions you will meet on the road so you had better be prepared. Take everything you think you will need if there is nothing available to you at the host school. Basic would be a medical kit, ice chest, refreshment drink and extra of everything if you are playing more than one contest.

In summation, it is my feeling that organization and good administrative policies are the key to a sound athletic training program. No matter how good your technical ability is, if you don't have the people, equipment and supplies where you want them, when you need them you will not have a successful program.

#### *Bibliography*

1. Arnheim, Daniel D. and Klafs, Carl E., *Modern Principles of Athletic Training*, The C.V. Mosby Co., St. Louis, Mo., 3rd ed. 1973, p.17
2. Trickett, Paul C., *Prevention and Treatment of Athletic Injuries*, - Appleton-Century-Crofts, New York, 1965, p. 61
3. O'Donoghue, Don H., *Treatment of Injuries to Athletes*, W.B. Saunders Co., Philadelphia, Penn., 1970, p. 5.
4. Olsen, Charles O., *Prevention of football injuries*, Lea and Febiger, Philadelphia, Penn., 1971, p. 29
5. Dolan, Joseph P. and Holladay, Lloyd J., *Treatment and Prevention of Athletic Injuries*, The Inerstate Printers and Publishers, Inc. Danville, Ill., 1967, p. 485
6. National Athletic Trainers Association, *Fundamentals of Athletic Training*, N.A.T.A., 1971, p. 6

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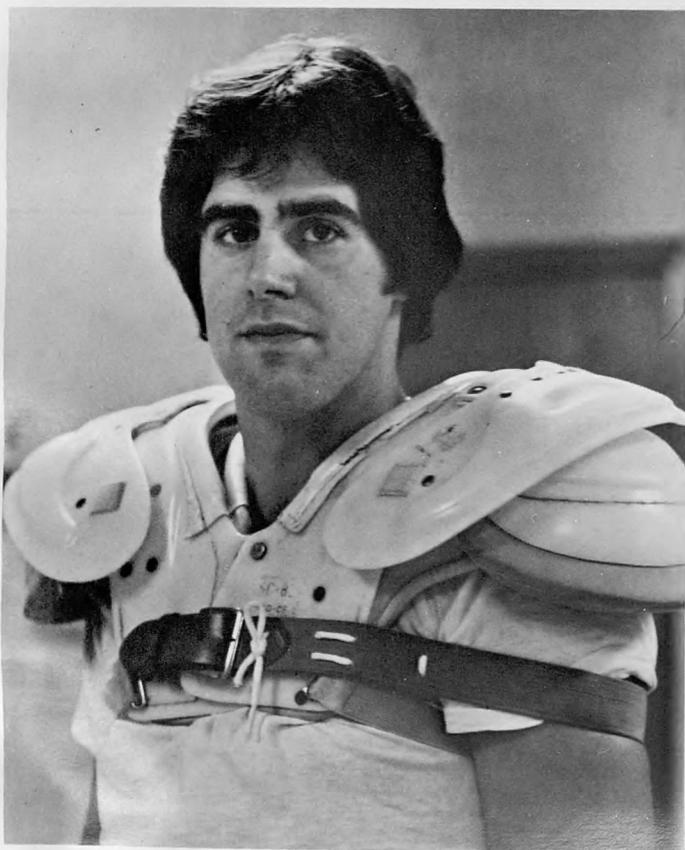
## Tips From the Field:

### Shoulder Strap To Prevent Anterior Glenohumeral Dislocations

By Joe Gieck, Ed.D., A.T.,C., R.P.T.  
Head Athletic Trainer  
University of Virginia

The author has devised a shoulder harness to limit abduction of the glenohumeral joint. This device has been particularly valuable for use with offensive receivers, backs, and defensive backs. The strap allows forward flexion as necessary for pass receiving and defending, but limits external rotation from a horizontal extended and abducted position (Fig. 1), a common mechanism in anterior dislocations.

The strap is made of a heavy 1-1/2" elastic belt. The buckle is riveted to the shoulder pad on the opposite side



from the dislocation. The remaining part of the belt is looped around the arm with the arm held in adduction and slight forward flexion (Fig. 2). Several notches are available for the athlete to adjust the tension of the strap when it is buckled. The athlete must be aware that the elastic strap around the humerus will stretch and adjustments must be made for this every week or two of the season to maintain adduction.

This arrangement has proven effective in the prevention of anterior dislocations. Because of the mechanism of injury, it is of no value in the prevention of posterior dislocations. It has not been used to date with inferior dislocations.

*Editor's Note:* Anyone wishing to have an idea, technique, etc., considered for this new section should send it to Rod Compton, Sports Medicine Division, East Carolina University, Greenville, N.C. 27834. Copy should be typewritten, brief and concise, using high quality photos and/or illustrations. •

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# A Trainer's Thoughts on Warm-Up

By William Musnicki III  
Assistant Athletic Trainer  
Northern Illinois University

A review of literature in the area of warm-up pertaining to injury prevention produces limited information. There are numerous articles pertaining to the performance of an athlete with and without warm-up. However, these articles are of little assistance in informing the athletic trainer of the injury prevention value of warming-up. The actual value of warm-up as related to injury prevention appears to be more a personal philosophy. Karpovich (3) stated that there was no experimental proof to support the concept that warm-up improves muscle function or reduces athletic injury. In opposition, Mellerowicz and Hansen (4) advocated the use of warm-up to prevent damage to the locomotor system.

In approaching the warm-up dilemma from a realistic point of view most trainers will advocate that their athletes warm-up. Even though there are limited data supporting warm-up as an injury prevention mechanism, we say it logically appears to have merit. Astrand (1) proclaims warm-up to be beneficial because the increased temperature allows for a higher metabolic process in the cell. It was proclaimed for each degree increased in temperature the metabolic rate of the cell increased by about 13 percent. At the higher temperature the exchange of oxygen from the blood to the tissue is more rapid. The nerve impulses at these higher temperatures also travel faster. Astrand stated that a 5 minute warm-up of light to moderate intensity is usually enough to raise the body temperature. Hogberg (2)

logically stated that the intensity and duration of warm-up should be adjusted to the particular environmental conditions. The higher the environmental temperature or the more clothing worn the sooner the desired body temperature will be attained.

Mellerowicz and Hansen (4) claimed that through the use of warm-up damage to the locomotor system could be prevented. They claimed that the prevention of sport injury hinges on the practice of warm-up before competition. The elasticity of the muscles is dependent on their blood saturation. These researchers claimed a "cold muscle" with little blood saturation tends to be more susceptible to tears and ruptures. It was advocated when warming-up special attention should be paid to the groups of muscles which will be functioning in the activity.

Again from a logical point of view, it seems the greater the range of motion at a joint the less susceptible the athlete to injury at this area. Burke (5) found that direct and indirect warm-up were helpful in improving range of motion for various body parts. From these studies it could be deduced that stretching the muscles through their range of motion, an indirect warm-up, would be beneficial for injury prevention. A combination of stretching and general warm-up to increase circulation and blood saturation of the muscles appears to be the logical approach to warm-up to increase circulation and blood saturation of the muscles appears to

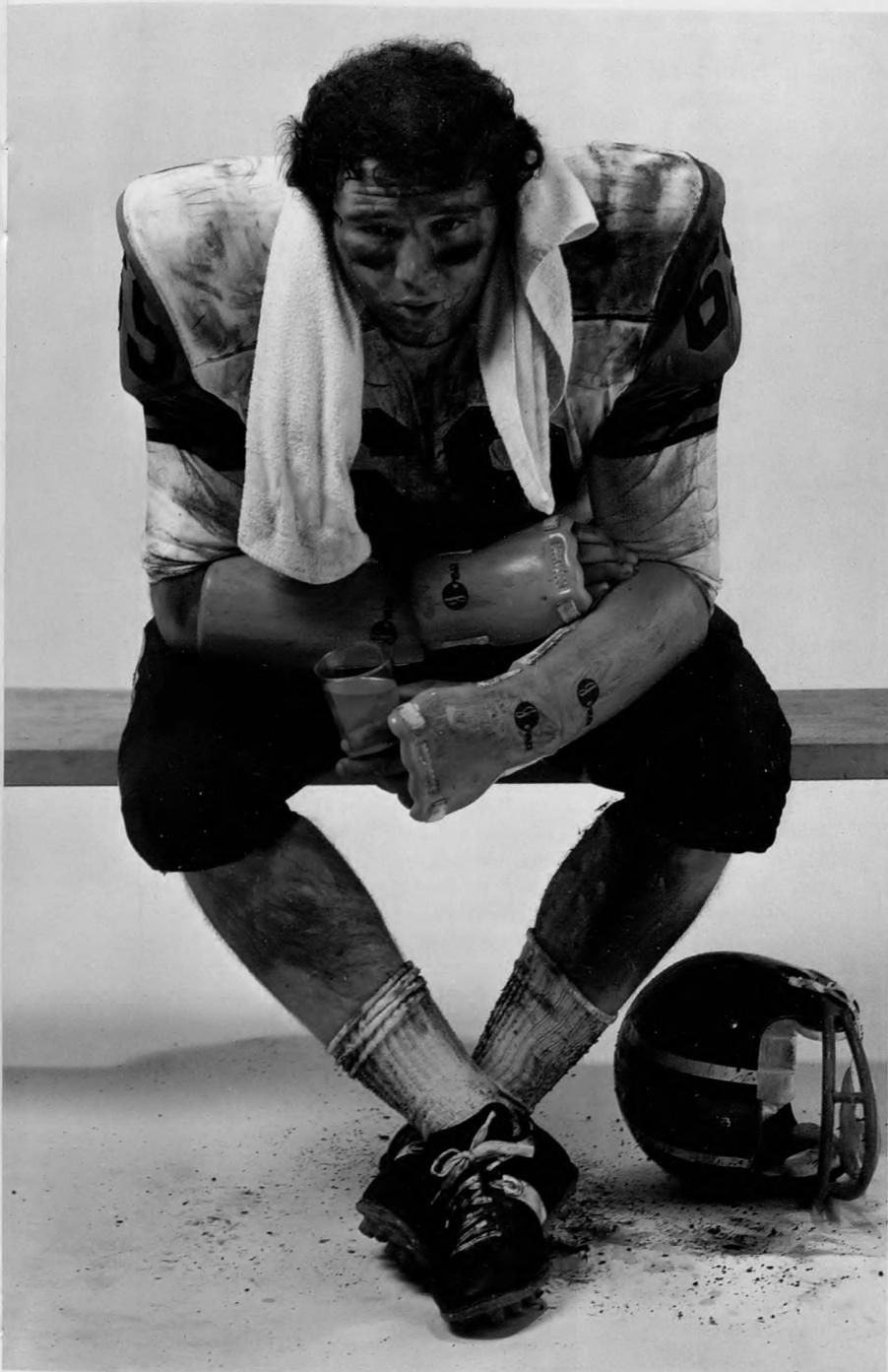
be the logical approach to warm-up. Another important aspect of warming-up is specificity of exercise. That is to say, warm-up should include the particular muscle groups which will be involved in the activity.

You should consider this logic the next time an inquisitive coach or athlete asks you if warming-up has merit. Based on these premises one could more easily advocate the use of warm-up as an injury prevention mechanism.

## Bibliography

1. Astrand, P.O., and K. Rodhal.- *Textbook of Work Physiology*. New York: McGraw Hill Book Company, 1970.
2. Hogberg, P., and O. Ljunggren.- *Textbook of Work Physiology*. New York: McGraw Hill Book Company, 1970.
3. Karpovich, P.V. "Warm-Up,"- *Encyclopedia of Sport Sciences and Medicine*. Larson ed. New York: MacMillan, 1972.
4. Mellerowica, H., and G. Hansen. "Conditioning," *Encyclopedia of Sport Sciences and Medicine*. Larson ed. New York: MacMillan, 1971.
5. Burke, R.K. "Relationship Between Physical Performance and Warm-Up Procedures of Varying Intensity and Duration." Doctoral dissertation microcards, University of Southern California, Los Angeles, 1957. •

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# Carbohydrate Loading: *A Boon or a Bane?*

By Louis R. Osternig, Ph.D.  
Certified Athletic Trainer  
University of Oregon



One of the most vexing problems in the realm of sports medicine has been the propensity of athletes toward the use of ergogenic aids. The term ergogenic aids means literally, "work producing" and an ergogenic aid is something used to improve performance or increase work output.

The stresses of competition in sport and the high values that have been placed on winning have led athletes to seek out an experiment with various substances which are purported to improve physical performance in the athletic arena.

In recent years, a number of research reports have suggested that a close relationship may exist between carbohydrate intake and athletic performance in some types of sports activity. Since athletes often unjustifiably generalize the results of such research, it is important that athletic trainers be cognizant of the benefits as well as the equally important limitations of special carbohydrate diets.

## *Carbohydrates and Short-Term Activity*

Most athletes depend on high carbohydrate intake and sugar supplements for their "quick energy" boost. However, research indicates that high carbohydrate foods benefit only those athletes who compete in long-term endurance events which are of a continuous nature and last for more than an hour. Since most sports events require short bursts of activity with intermittent rest periods, unusually high carbohydrate diets offer no apparent physiological benefit.

---

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Carbohydrates are stored in the form of glycogen in the liver and muscles where they represent a readily available source of energy for muscular contraction. However, the practice of using sugar and other concentrated carbohydrates as pre-exercise supplements for "quick energy" has generally not been substantiated in the literature if it is used by athletes involved in sports of short duration. Fowler (6) reported studies by Haldi and Wynn (7), Pampe (15) and Karpovich (12) who found no effect on performance from the ingestion of sugar as a pre-exercise supplement. Bergstrom and Hultman (2) found that in the well-trained athlete the size of the glycogen store is not a limiting factor in short-duration, high-intensity exercise, provided that the stores are not grossly subnormal at the beginning of exercise. In fact, excessive quantities of sugar ingested just prior to competition may be detrimental to performance since they tend to draw fluid into the gastrointestinal tract from other parts of the body and possibly hasten dehydration (5).

Thus, carbohydrate supplements do not appear to modify performance in short-term athletic events. However, if food is difficult to digest or creates gaseous conditions in the gastrointestinal tract, the uncomfortable feeling may adversely affect performance.

## *Carbohydrates and Long-Term Endurance Activity*

It is well documented, though, that there is an increased utilization of carbohydrate during prolonged strenuous exercise. By means of direct determination of the glycogen concentration in working muscle, it has been shown that muscle glycogen is the most important energy source of exercising muscles working near maximum for long periods (8, 9).

As early as 1939, Christiansen and

Hansen (4) demonstrated that subjects consuming diets rich in carbohydrates were able to perform heavy exercise for considerably longer periods than those on a normal diet. Bergstrom and Hultman (2) demonstrated a linear correlation between the amount of muscle glycogen in the muscles before exercise and the length of time subjects could sustain exercise at a given work load. These researchers demonstrated further that as an athlete increases the intensity of a workout the body utilizes an increasing percentage of its carbohydrate stores for energy. Thus, at 85-90% of maximum effort nearly 100% of the total energy utilized by the body is derived from carbohydrates. Carbohydrate contains more oxygen than does fat and approximately 10% less oxygen is needed per unit of energy when carbohydrate is metabolized. Carbohydrate is, therefore, the preferred energy source of athletes.

According to Astrand (7), an athlete on a normal diet has only enough glycogen to perform heavy exercise from 1½ to 2 hours before exhausting his or her glycogen stores. This finding has been substantiated by others, namely, Bogert (3) Bergstrom and Hultman (2) and Darden (5). Hence, in events such as marathon running, cross country skiing and long distance walking and cycling, dietary carbohydrate seems an important consideration.

Because of the discovery that endurance was directly related to the amount of glycogen stores in muscles, interest was generated to determine if such stores could be increased through dietary alterations. It was observed that in long-term physical activities, the practice of increasing carbohydrate in the diet several days before the event considerably enhanced the ability of subjects to sustain high-intensity exercise. However, such a diet is only effective when one combines it with other

procedures. First, the athlete must exercise to exhaustion one week prior to the event in order to completely deplete the muscle glycogen stores. Then the athlete must continue to keep the muscle glycogen content low by consuming a low carbohydrate diet for three days. Thereafter, the athlete shifts to a high carbohydrate diet until the time of competition (10). As a result of this regimen, it is found that glycogen concentrations in muscle increased two to three times that of normal (2,11).

This increasing of glycogen stores has been referred to as "glycogen overshoot," while the diet itself has been termed "carbohydrate loading" or "super compensation."

Studies by Karlsson and Saltin (2) and Slovic (17) attempted to determine the efficacy of this diet among marathon runners and found that the diet made little or no difference in runners' performances over the first half of a run (approximately 1-1¼ hours). But marked improvement was noted over the last quarter of the run by the "loaders" when compared to "non-loaders."

Such findings almost guarantee the widespread use of "glycogen loading" by endurance athletes. In fact, a survey of runners in the 1974 Trail's End Marathon in Oregon indicated that 50% of the respondents who finished in three hours or less had followed this diet (17).

#### Limitations of "Carbohydrate Loading"

One of the major limitations of "carbohydrate loading" is the potential for overbelief in the role and capability of the technique. It is important to reiterate that the diet has only been found to be effective in certain athletic events, namely, those involving continuous exercise at high intensity and lasting over an hour. Beneficial results cannot be expected, therefore, for sports such as football, basketball, or short-term track events when bouts of exercise are of relatively short duration.

However, even when the diet is used by long-term endurance athletes, the effects may not be entirely beneficial. Some athletes find that training during the diet period is so unpleasant that they skip the diet completely. It has also been suggested that the indiscriminate use of the technique may deprive the body of essential nutrients found in other types of food (16).

In addition, a weight gain is a usual occurrence since with the increased glycogen excess, water is also drawn

into the muscle. When glycogen stores are filled to maximum, the amount of water bound in this manner of 2.5-3.5 kilograms (14). This can result in complaints of feelings of "heaviness" or "stiffness."

Nelson (13) has expressed concern about the increased fluid retention caused by the diet. He noted that cardiac muscle is not exempt from excess glycogen and water deposition and reported that angina-like pains and electrocardiographic abnormalities have occurred in a marathon runner who was on the diet.

Although the long-term effects of repeated, forced depletion and replenishment of muscle glycogen have not yet been accurately determined, one peculiarity of "carbohydrate loading" should be noted. The athlete seems to build a tolerance to the diet and it loses its effectiveness if it is used too frequently and without adequate intervals between administrations (14). This, of course, does not necessarily mean that possible side effects will similarly be reversed.

The limitations and potential side effects of "carbohydrate loading" take on additional importance when one considers that the diet may well be used in an unsupervised and indiscriminate manner by athletes hoping to improve their performance. Thus, at this time, carbohydrate diets are extremely controversial and "loading techniques" should not be attempted without advice from physicians and trainers who are knowledgeable of the physiological ramifications.

#### REFERENCES

1. Astrand, R.O. In: *Nutrition and Physical Activity*, edited by G. Blixt. Adlqvist and Wiksell, Stockholm, 1967.
2. Bergstrom, A.B., and E. Hultman. "Nutrition for Maximal Sports Performance." *Journal of the American Medical Association*, 221 (August, 1972) 999-1006.
3. Bogert, L.J., G.M. Bridges, and D.H. Calloway. *Nutrition and Physical Fitness*. W.B. Saunders Company, Philadelphia, 1973.
4. Christiansen, E.H., and O. Hansen. "Arbeitsfahigkeit und Ernahrung." *Scandinavian Archives of Physiology*, 81, 1939, 160-71.
5. Darden, E. "Olympic Athletes View Vitamins and Victories."

*Journal of Home Economics*, 65, 1973, 8-11.

6. Fowler, W.M. "The Facts About Ergogenic Aids and Sports Performance." *Journal of Health, Physical Education and Recreation*, 40 (November-December, 1969), 37-42.
7. Haldi, J., and W. Wynn. "Effect of Low and High Carbohydrate Meals on Blood Sugar Level and Work Performance in Strenuous Exercise of Short Duration." *American Journal of Physiology*, 145, 1946, 402.
8. Hermansen, L., E. Hultman, and B. Saltin. "Muscle Glycogen During Prolonged Severe Exercise." *Acta Physiologica Scandinavica*, 71, 1967, 129-35.
9. Hultman, E. "Studies on Muscle Metabolism of Glycogen and Active Phosphate in Man with Special Reference to Exercise and Diet." *Scandinavian Journal of Clinical Laboratory Investigation*, 19, 1967, Supplement 94.
10. Hyman, M. "Glycogen Stores and Increased Stamina." *The Athletic Coach*, 6, (June, 1972).
11. Karlsson, J., and B. Saltin. "Diet, Muscle Glycogen and Endurance Performance." *Journal of Applied Physiology*, 31, 1971, 203-6.
12. Karpovich, P.V. *Physiology of Muscular Activity*, 6 ed. W.B. Saunders, 1965.
13. Nelson, R.A. "Exceptional Nutritional Needs of the Athlete." Paper presented at the 15th National Conference on the Medical Aspects of Sports, Anaheim, California, December 1, 1973.
14. Olsson, K., and B. Saltin. "Diet and Fluids in Training and Competition." *Scandinavian Journal of Rehabilitation Medicine*, 3, 1971, 31-8.
15. Pampe, W. "Hyperglykämie und Körperliche Arbeit." *Arbeitsphysiol*, 5 (1932), 342.
16. Sands, S. "The Search for the Ultimate Spinach." *Women Sports*, 5, (October, 1974) 36-68.
17. Slovic, P. "Eating Away Precious Minutes." *Runners World*, 9, (November, 1974), 34-5. •



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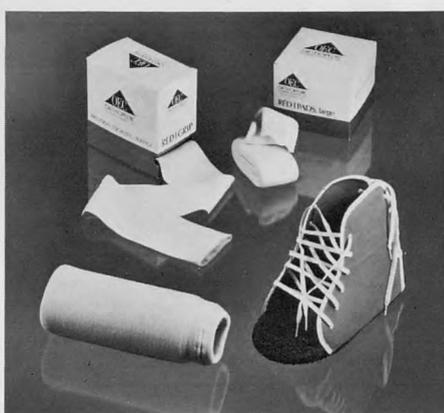
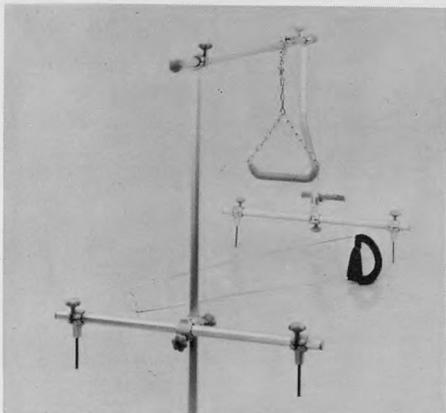
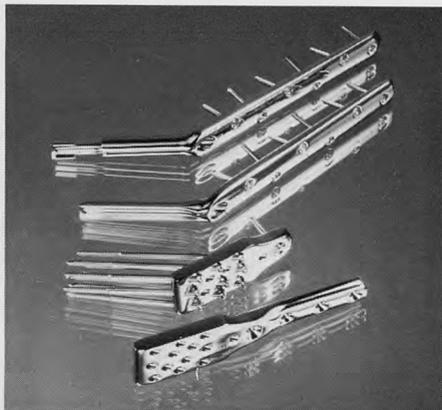
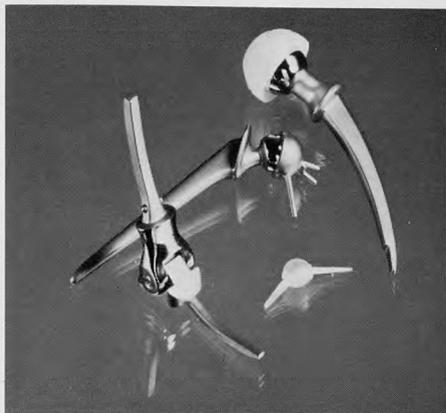
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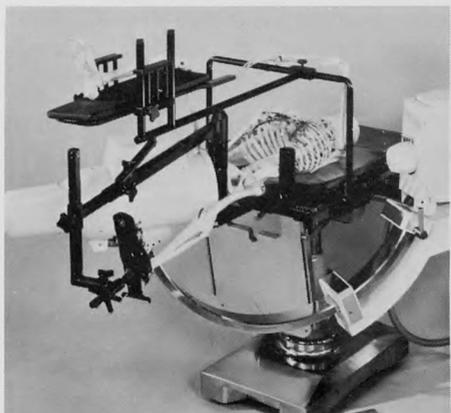
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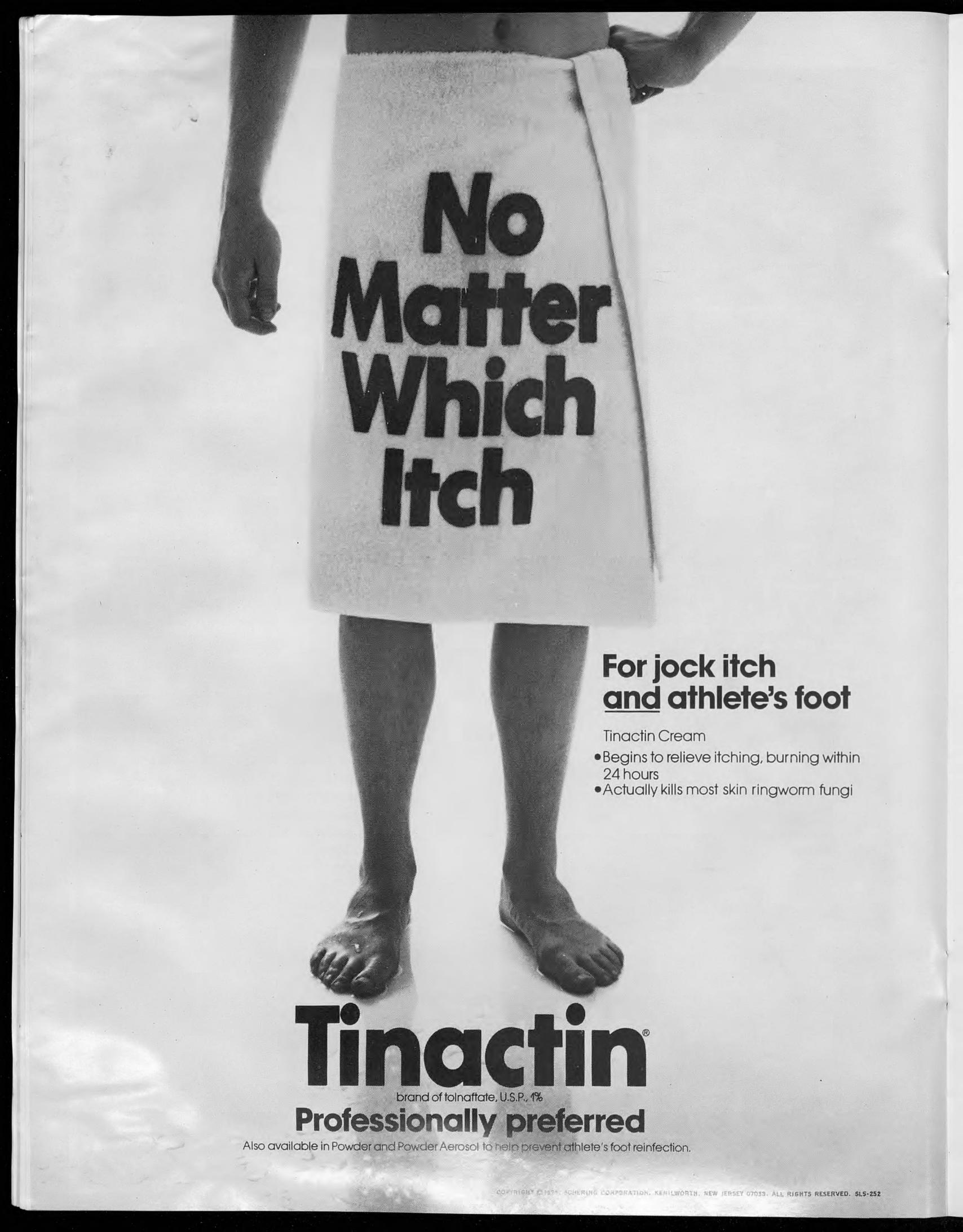
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## *The 1975 Schering Symposium on Musculotendinous Injuries:*



## **Prevention of Hamstring and Groin Strain**

By Ron O'Neil, A.T., C.

### *Muscle Testing*

Injuries to the hamstring and groin musculotendinous units produced by muscular strain are of great interest. Disguised under the term "pull", regardless of severity, these injuries often constitute a serious and sometimes painful athletic injury.

For years sports medicine authors have expressed different opinions concerning the causes that contribute to the majority of hamstring and groin strains. Many agree that fatigue, poor posture, uneven muscle strength, nonflexibility, and overstretching are the primary causes leading to such strains. (1,2,3,4) However, despite the fact that these causative factors are known and accepted, there still remains for the physician, athletic trainer, and coach the responsibility of preventing injuries of this type.

This article, therefore, attempts to present a method of prevention for the hamstring and groin strain. Muscle testing, flexibility evaluation, and stretching exercises are the three phases of this method which will be presented and illustrated.

---

*Ron O'Neil received his Bachelor of Science degree in physical education from Ball State University in 1969. Ron served as Assistant Trainer for Northwestern University, as well as for three College All-Star Games, from 1969-1973. Presently he is the Assistant Athletic Trainer for The Philadelphia Eagles Professional Football Club.*

Through electro-mechanically evaluating the hamstring and groin muscles, the degree of basic muscular bilateral strength, the degree of weakness, and the degree of imbalance can be determined. These evaluations provide a basis for which an objective analysis can be made and a training or reconditioning program can be prescribed.

For the bilateral comparative strength testing, an isokinetic electro-mechanical dynamometer is used. Unlike the conventional muscle testing instruments, the isokinetic electro-mechanical dynamometer provides for reciprocal exercise through the full range of motion. Accompanying the dynamometer is a component graph recorder which records in foot pounds the muscles' strength capacity.

Muscle testing evaluations are administered in the following manner:

(Evaluation 1: Hamstring) The athlete is tested for bilateral knee flexion-extension strength and ratio. This is accomplished in a sitting position with the thigh strapped to the exercise table for muscle isolation. The lever arm of the dynamometer is attached to the distal lower leg by means of a padded velcro-strap. The test is performed by reciprocally exercising the

hamstring-quadriceps muscles at maximal effort for 2 sets of 4 repetitions. (Figure 1).

(Evaluation 2: Adductor) The athlete is tested for bilateral adduction strength. This is accomplished from a side-lying position on a conventional treatment table with the upper body strapped for stability. The axis of the dynamometer is approximated to the anterior hip axis while the lever arm of the dynamometer is attached to the lateral distal lower leg area. The test exercise is performed by elevating the leg to a maximum point of abduction followed by active exercise through the normal adduction range of motion on a non-reciprocal basis. The test is performed at a maximal effort for 2 sets of 4 repetitions. (Figure 2).

(Evaluation 3: Iliopsoas) The athlete is tested for bilateral hip flexion. This is accomplished from a backlying position on a conventional treatment table with the upper body strapped for stability. The axis of the dynamometer is approximated to the lateral hip axis while the lever arm of the dynamometer is attached to the anterior proximal knee area. The knee is flexed to a 90 degree angle with the foot dorsiflexed and the heel in contact with the table. The test is performed at a maximal effort for 2 sets of 4 repetitions (Figure 3).

Note: Hip flexion tests with the knee extended do not elicit an accurate evaluation of the iliopsoas function.

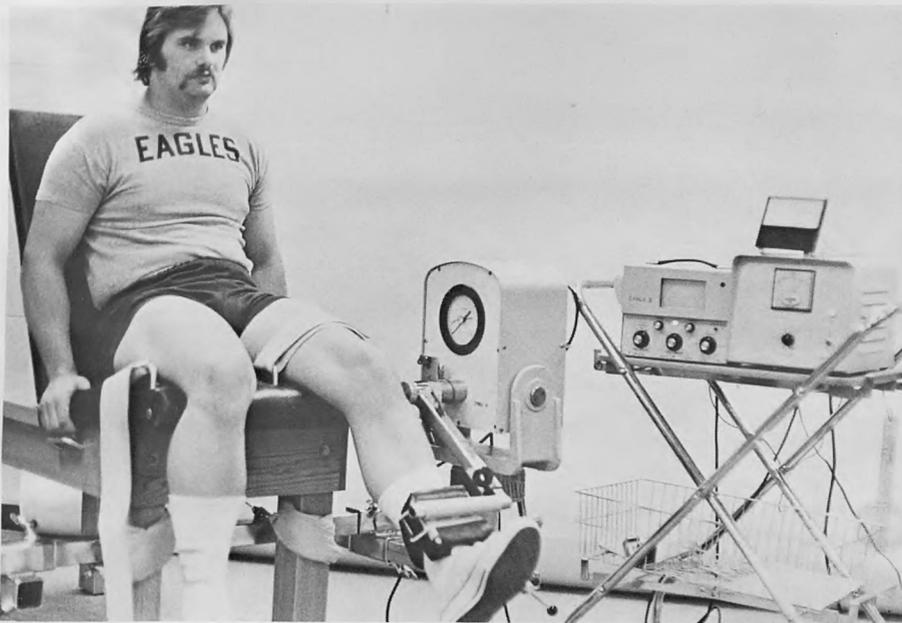


Figure 1

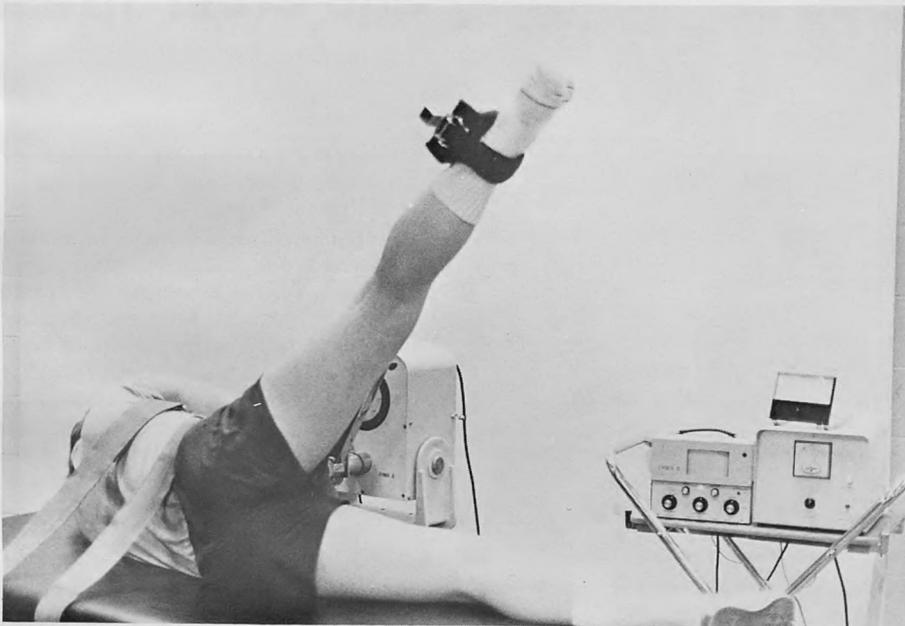


Figure 2

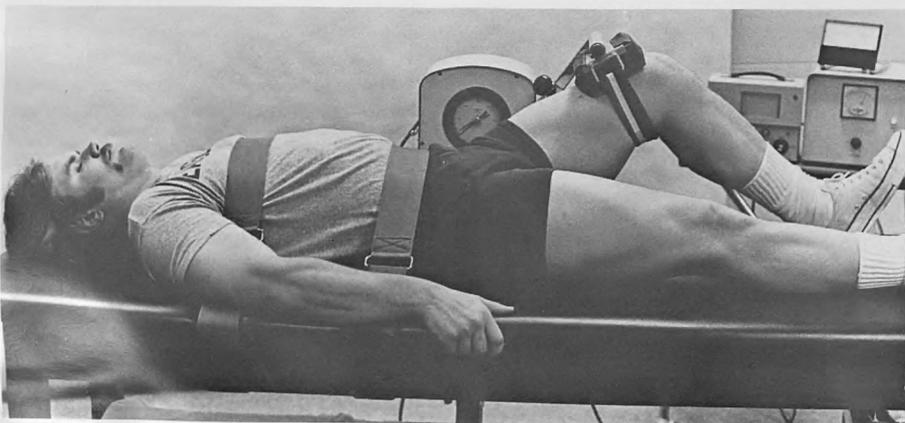


Figure 3

The knee must be flexed to withdraw the effect of the accessory rectus femoris muscle. (5).

#### Flexibility Evaluation

Through subjective evaluation of the hamstring and groin muscle groups, the degree of flexibility can be determined. It must be noted that it is impossible to totally isolate these two muscle groups. The results of the evaluation provide a permanent record on which to evaluate future improvements in flexibility.

The evaluation period is an opportune time to educate the athlete about flexibility. Consequently, he becomes more enthusiastic about his status of flexibility, and therefore, adopts the program of stretching exercises.

Flexibility evaluations are administered in the following manner:

(Evaluation 1: Hamstring Flexibility) In a standing position, with the palms of the hands placed flat in front of the feet with the knees flexed, the athlete attempts to extend the knees completely. The hands must remain flat on the floor. Shortened or tightened hamstrings will cause the palms of the hands to be lifted. Evaluation is recorded as good, average, or poor. If an athlete's evaluations are good, he shows either complete extension at the knees or a flexion of no more than 10 degrees. (Figure 4). An average evaluation will fall in the range of 10-30 degrees

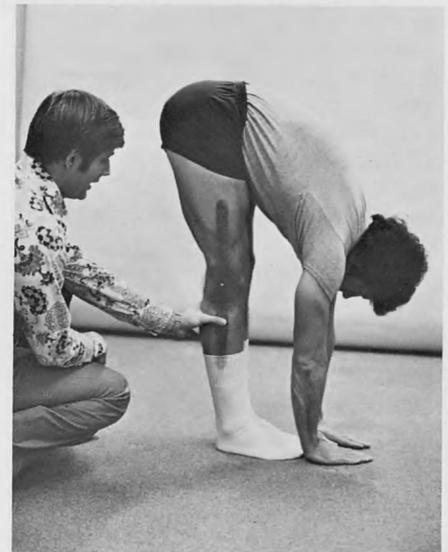


Figure 4

flexion. (Figure 5). The poor evaluation represents a flexed knee greater than 30 degrees. (Figure 6).

(Evaluation 3: Adductor Flexibility) In a sitting position the legs are extended apart as wide as possible with the arms extended. The



Figure 5



Figure 6

athlete attempts to flex the trunk downward toward the floor. (Figure 7). The evaluation is recorded as good if the athlete can touch, or come close to touching, his upper body to the floor. An average evaluation is



Figure 7



Figure 8

recorded if only a mid portion of flexion can be accomplished. (Figure 8). A poor evaluation represents basically no trunk flexion at all. (Figure 9).



Figure 9

Upon completion of the flexibility evaluations, all athletes are instructed in the techniques of stretching and subsequently are introduced to a series of hamstring and groin stretching exercises.

#### STRETCHING EXERCISES

In teaching the techniques of stretching the following points are stressed:

- (1). All exercises should be done slowly and deliberately.
- (2). Stretch as far as possible until a tightness and burning sensation is felt.
- (3). Hold the stretch position for at least 10 seconds.

#### EXERCISE 1 - Hamstring

Standing erect with the feet together, reach down and grasp the ankles or touch the floor. Attempt to touch the nose to the knee area. Hold each stretch for 10 seconds. Do 8 to 10 repetitions. (Figures 10-11).



Figure 10



Figure 11

#### EXERCISE 2 - Hamstring

In a standing position with the feet shoulder width apart, bend one knee

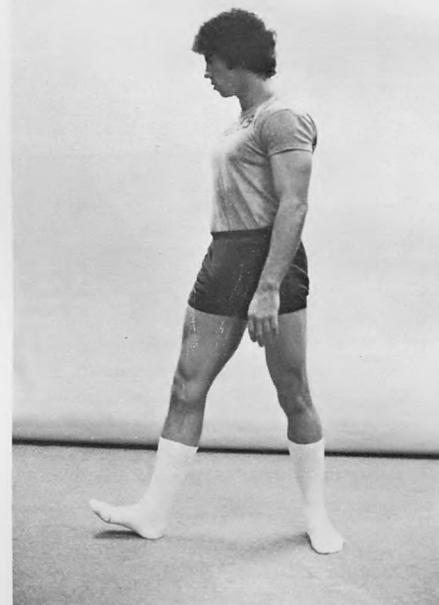


Figure 12



Figure 13

and extend the other leg slightly to the side with the foot dorsiflexed. Attempt to grasp the ankle of the extended leg. Repeat the exercise using the opposite leg. Hold each stretch for 10 seconds. Do 8 to 10 repetitions on each leg. (Figures 12-13).

**EXERCISE 3 - Hamstring**

In a standing position, place one leg with the foot dorsiflexed on an object which is higher than the waist. Keep both legs straight. Grasp the ankle of the elevated leg and attempt to touch the nose to the knee. Repeat the exercise using the opposite leg. Hold each stretch for 10 seconds. Do 8 to 10 repetitions on each leg. (Figures 14-15).



Figure 14



Figure 15

**EXERCISE 4 - Hamstring**

In a sitting position with the legs extended together and the feet dorsiflexed, grasp the ankles or the toes. Attempt to place the nose between the knees. Hold the stretch for 10 seconds. Do 8 to 10 repetitions. (Figures 16-17).



Figure 16

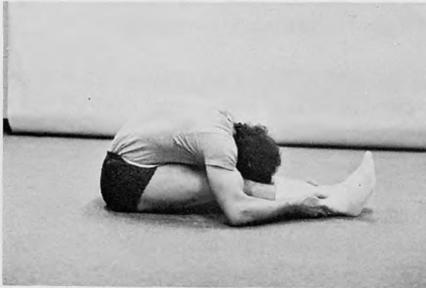


Figure 17

**EXERCISE 5 - Hamstring**

In a sitting position with the legs extended slightly apart and the feet dorsiflexed, touch one foot with the opposite hand. Repeat the exercise using the opposite foot and hand. Hold each stretch for 10 seconds. Do 8 to 10 repetitions on each side. (Figures 18-19).



Figure 18



Figure 19

**EXERCISE 6 - Hamstring**

In a backlying position with the legs together and the feet dorsiflexed, elevate one leg to a 90 degree angle. Grasp the elevated leg at the ankle and pull it toward the head. Repeat the exercise using the opposite leg. Hold each stretch for 10 seconds. Do 8 to 10 repetitions on each leg. (Figures 20-21)



Figure 20



Figure 21

**EXERCISE 7 - Groin**

In a sitting position with the legs widely spread and the feet dorsiflexed, reach with both hands and grasp both feet. Attempt to touch the nose to the floor. Hold the stretch for 10 seconds. Do 8 to 10 repetitions. (Figures 22-23)



Figure 22



Figure 23



Figure 24



Figure 25

**EXERCISE 8 - Groin**

In a sitting position with the back straight, bend the knees, place the bottoms of the feet together, and pull the feet toward the groin. Place the hands on the knees and push the knees to the floor. Hold the stretch for 10 seconds. Do 8 to 10 repetitions. (Figures 24-25).



Figure 26

**EXERCISE 9 - Groin**

In a side stride position with the trunk rotated to the left, the left foot pointed straight ahead, and the right foot planted sideways, bend the left knee as far as possible. Keep the back straight. Repeat the exercise to the opposite side. Hold each stretch for 10 seconds. Do 8 to 10 repetitions on each side. (Figures 26-27).



**EXERCISE 10 - Groin and Hip Flexor**

In a forward stride position with both feet pointed forward, bend the forward knee and place the back in hyperextension. Reverse the position of the legs and repeat the exercise.



Figure 28



Figure 29

Hold each stretch for 10 seconds. Do 8 to 10 repetitions on each side. (Figures 28-29).

Three phases of a specific preventative method for the hamstring and groin strain have been presented: (1) muscle testing to determine strength; (2) flexibility evaluations to determine the muscle's capability to stretch about the joint; and (3) stretching exercises to improve flexibility. However, only through a conscientious effort on the clinician's part to instill this method or similar methods can one expect to see a reduction in injuries of this type.

**REFERENCES**

1. Kalfs, C. and D.D. Arnheim. *Modern Principles of Athletic Training*. Mosby Company, pp. 318, 1963.
2. Klein, K., and Allman, F., *The Knee in Sports*, The Pemberton Press: New York, New York, pp. 81, 1969.
3. Burkett, L., "Causative factors in hamstring strains", *Medicine and Science in Sports*, Vol. 2, No. 1, pp. 39-42, Spring, 1970.
4. Merrifield, H.J., and Cowan, R., "Groin Strain Injuries in Ice Hockey", *The Journal of Sports Medicine*, Vol. 1, No. 2, pp 41-42, January-February, 1973.
5. Thornkike, A., *Athletic Injuries: Prevention, Diagnosis and Treatment*, Lea & Febiger, Philadelphia, pp. 186-187, 1949.

# The N.A.T.A. At The International Special Olympics



*Gary Lake helping a young boy who has a heart problem.*



*The stands at the stadium.*



*Jerry Marsh fixing an abrasion to a young runner's hand.*



*Dana Gerhardt helping with a heart problem.*

by Don Roach, A.T.,C.  
University of Minnesota  
Duluth, Minnesota

and Ken Kopke, A.T.,C.  
Head Trainer  
International Special Olympics  
Central Michigan University  
Mt. Pleasant, Michigan

Edited By:  
Ronnie Barnes, A.T.,C.  
Assistant Athletic Trainer  
East Carolina University  
Greenville, North Carolina

This past August, fifteen Certified Athletic Trainers and fifteen student trainers were fortunate to participate in one of the most moving experiences of their lives, The International Special Olympics.

For those unfamiliar with the Special Olympics, it was created by Mrs. Eunice Kennedy Shriver seven years ago, so that retarded people could enjoy, and be seen enjoying things other people enjoy, like running, jumping and having fun.

The Special Olympics provide many important things to the 400,000 competitors across the country at local and state meets. The Special Olympics provide an opportunity for these people to gain some self-regard and a feeling of accomplishment that is derived from challenges met, as well as improving their physical fitness and having fun. These are the things that all people need whether they are retarded or "normal," and the Special Olympics provide a great service.

The trainers that came to Mt. Pleasant, Michigan, came from all over the United States — New Mexico, North Carolina, Oregon, and New York, and of course many from Michigan. They came to work, and work they did. Ken Kopke, host trainer for the staff and head trainer at Central Michigan, organized the trainers into fifteen units of one Certified Trainer and one student. The following Certified and student trainers graciously spent part of their summer helping these wonderful kids:

#### Certified Trainers

Mike Abdoneour	Detroit Michigan
Carmen L. Angelo	Whitewater, Wis.
Alberto Errico	Pennsville, N.J.
Dana Gerhardt	Champaign, Ill.
Dale S. Gogins	Granville, Ohio
Daniel Hooker	Chapel Hill, N.C.
J. Tracy James	Wilmington, N.C.
Lee R. Kermod	Kalamazoo, Mich.

Gary Lake	Ashland, Ohio
Jerry Marsh	Macomb, Illinois
Dick Milder	Troy, Michigan
Dan Minert	Brighton, Michigan
Jim Risto	Livonia, Michigan
Don Roach	Duluth, Minnesota
Gary Strickland	Ypsilanti, Mich.

#### Student Trainers

Timothy Annis	Macomb, Illinois
Barry Bachelor	Burgaw, North Carolina
Pat Baril	Mt. Pleasant, Mich.
Tim A. Carr	Zanesville, Oh.
Diana Case	Columbus, Ohio
Terry Davis	Hobbs, New Mexico
Eddie Glenn	Orangeburg, S.C.
Florry Goldberg	Albany, N.Y.
Tim Carr	Alma, Michigan
KiAnn Kruittlin	Mt. Pleasant, Michigan
Robert McElreath	Troy, Mich.
Barbara Percy	Athens, Ohio
Tom Rokovitz	Mt. Pleasant, Mich.
Ronald Stefancin	Morganton, W. Va.
Lane Tucker	Kincheloe AFB, Mich.

#### Recruitment

Recruiting of necessary personnel was accomplished by advertising in *Athletic Training*, the N.A.T.A. Journal; the *First Aider*, and the *Journal of the American Association of Health, Physical Education, and Recreation*. Over 350 volunteers responded from around the United States, from professional team trainers to high school student trainers.

A one-day in-service workshop was conducted the first day to familiarize the personnel with the procedures, review emergency care techniques (seizures), staff and facilities available, and a general get-acquainted meeting. Quite a deal of camaraderie was developed among the trainers that worked this event.

#### Equipment

Each trainer was supplied with a white shirt with a big red cross in the middle of the back. It was felt that this would provide a good means of instant recognition.

Each team (15) was provided with a field kit, provided by the Cramer Chemical Company to provide a means of carrying first aid supplies with them in the field. Each team was also provided with the necessary first-aid supplies by the Johnsons and Johnsons Company, a medical supply company.

#### Summary

Reflections of the whole special olympics undertaking is truly phenomenal. The amount of work, personnel, supplies, final results

brings about a great sense of accomplishment. The pride, love, and professionalism shown by the trainers in their handling and understanding of the special olympic participants was especially gratifying.

#### Total Number of Treatments Other Than Health Services International Special Olympics

Abrasion	81
Anorexia	1
Anxiety Reaction	4
Blister	30
Burn	4
Canker Sore	1
Cellulitis	1
Cephalalgia	19
Chest Pain	1
Cold	2
Contusion	25
Contact Dermatitis	1
Cough	3
Cramp	16
Ear Ache	6
Epistaxis	8
Exhaustion	35
Eye Irritation	4
Fainting	1
Fracture	1
Gastroenteritis	4
Hay Fever	1
Hang Nail	1
Head Trauma	1
Herpes Lesion	1
Hyperventilation	2
Insect Bite	2
Laceration	18
Localized Allergic Reaction to Sun Screen	1
Localized Allergic Reaction to Solarcaine	1
Menstruation	1
Maceration	1
Morning Sickness	1
Myositis	1
Nausea	4
Pain in Upper Right Quadrant	1
Pain from Surgical Pin in Knee	1
Pharyngitis	10
Primary Dysmenorrhea	2
Rash	2
Seizure	6
Sliver	2
Sprain	14
Strain	6
Sunburn	8
Sutures Examined	1
Sutures Removed	1
Tendonitis	3
Toenail Ingrown	3
Toothache	1
	<u>343</u>

#### Complete Totals

247 patients seen at the Health Services	
47 patients admitted to the Health Services	
343 patients seen at other areas besides the Health Services	
637	•



# POTPOURRI

BY  
DENNIS ATEN, A.T.,C.  
EASTERN ILLINOIS UNIVERSITY

## *Remedy for "Barbaric Care"?*

Questions have often been raised regarding the improvement of health care in athletics. It has been challenged that the mere attendance of physicians at games and/or practices is a valid method of improving sports medicine services. One physician questions the competency of many physicians in the area of sports medicine and wonders if there is an adequate reference source for proper health care of the athlete. He also asks if there is sufficient scientific evidence to support many of the traditional activities in sports medicine.

Many questions have been raised in this regard. Now it is up to all of us engaged in sports medicine activities to answer some of the problems.

## *Michigan Interscholastic Athletic Health Care*

Richard Redfearn conducted a survey of 216 Michigan high schools, which was equally distributed over four classes of competition (A,B,C,&D) via random selection, the researchers found that the health care of the high school athlete is less than adequate in consistency and varying in quality. The survey was completed in June, 1974. The findings were that 27% of the surveyed high schools had a physician under contract to perform physicals and attend sporting events sponsored by the high school. Fewer than 4.0% had the same physician available to administer physical examinations to all

teams. Attendance at home football games by a physician was: Class A, 82%, B, 63%, C, 44%, & D, 27%. Thirty-nine percent conduct sporting events within one to three miles from hospitals with emergency facilities. All other high schools were further away; up to 21 plus miles. Of nine categories basic to the physical examination only blood pressure (67.5%), general physical condition (72.5%), and cardiology evaluation (50%) were utilized in the physical examination to high school athletes. Twelve percent of the survey reported any psychological testing or evaluation (empirical) on the high school athlete. Nine percent reported any type of trainer capability. The majority of respondents indicated that they should have better medical coverage of their athletic events, but either could not identify competent medical authority, locally, or could not afford their services. Few high schools kept any medically oriented records on their athletes. Those were: medical history (13%), physical evaluation (19%), injury diagnosis & treatment record (16%), rehabilitation record (3%) and permission to participate (by physician) (33%). Attitudes toward tougher rules in football, moderate to poor. Attitudes toward increasing research and education in athletic medicine in Michigan high schools, by universities; excellent.

## *New Conditioning Program*

The American Football Coaches Association has recently published a

new booklet entitled, "New Conditioning Program for Participation in Athletics." The booklet gives many good pointers for young people to follow, however several aspects of concern are evident.

1. Flexibility exercises are totally ignored.
2. Some of the strength exercises have questionable value and some "experts" feel they may be harmful.
3. Nutritional advice given often relates to what the colleges and pro tradition have done rather than discuss proper nutritional facts.

Maybe everyone should review literature of this nature and report their views.

## *First Annual A.O.S.S.M. Meeting Handles Membership Policies*

Membership requirements were spelled out when the American Orthopaedic Society for Sports Medicine held its first annual interim meeting July 28-30 in New Orleans, Louisiana.

The session, attended by nearly 360 orthopaedic surgeons and athletic trainers, was described by Joe W. King, MD., Houston, Texas, society president, as "one of the most successful we've ever had. The presentations were excellent and there were many young orthopaedic surgeons who attended and participated in the program."

During the meeting, Dr. King

stressed that the AOSSM is "an open society, not a club. Our goals are to further sports medicine, to provide a forum for people to speak their views and to have an organ whereby these views may be published. We care less about who presents the papers or articles. We are interested primarily in the content. The floor is open to anybody who produces -- be he an orthopaedic surgeon, a trainer, coach, athlete or whatever."

While the society has four membership classifications -- active, affiliate, honorary and emeritus -- its ranks are composed mainly of active and affiliate members. According to AOSSM bylaws:

"Active members must be orthopaedic surgeons who are members of the American Academy of Orthopaedic Surgeons or Canadian members who have similar qualifications and who have made significant contribution to sports medicine."

"Affiliate members are non-members of the American Academy of Orthopaedic Surgeons or Canadian members with similar qualifications, not necessarily physicians and surgeons but including allied professions interested in or contributing to the knowledge of sports medicine."

Procedures for active or affiliate status in the society are identical, Dr. King noted. Candidates for membership must be sponsored by at least two active members who will write the society's secretary stating the qualifications, reasons for membership recommendation and demonstrated interests and contributions of the nominee to sports medicine. The Membership Committee and finally the society membership vote on acceptance of the candidates.

Those gaining active membership pay a \$100 entrance fee and \$100 annual dues. The entrance fee and annual dues for affiliate members is half that amount.

Dr. King pointed out that continued society membership is contingent on attendance at AOSSM meetings. "If a member misses three annual meetings in succession he is automatically dropped from the membership of this society," Dr. King said.

#### *Calcium for Muscle Cramps*

A California physician has recommended calcium supplements be considered for muscle cramps. He is not discounting the importance of potassium and sodium supplements.

Although most individuals get

plenty of calcium with milk intake, the physician states this is impractical with those people with a lactase deficiency. He feels that the problem is young people during growth spurts. Since he has stated using calcium supplements on athletes in the growth age group there seems to be a remarkable reduction in the cramp problem.

#### *More on Heat Stress*

A recent study has been responsible for the following recommendations regarding heat problems

in athletes. Many of these you have heard before but they bear repeating.

1. Condition and acclimate athletes early in the season prior to donning protective equipment.
2. Expose as much skin area to the environment as possible during time outs and breaks such as removing helmets, raising jerseys and loosening pads, etc.
3. Environmental temperatures and humidities should be continually monitored by coaches and trainers.
4. Extreme caution should be taken under severe warm weather conditions.

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# CURRENT LITERATURE

BY  
ED CHRISTMAN, A.T.,C.  
THE COLLEGE OF WILLIAM & MARY

- "Anabolic Steroids in Athletics: Crossover Double-Blind Trail on Weightlifters," Freed, D.J. et al. *British Medical Journal*, B.M.A. House, Tavistock Sq., London, WC1 H9, JR, England. 2 (5969): 471, 31 May, 1975.
- "Are Kids Too Young to Avoid Sports Injuries?" Gerber, S. *Science Digest*, 224 West 57th Street, New York, New York 10019. 78:44, October, 1975.
- "Athletics and Cardiovascular Health," Franks, B. *The Journal of Sports Medicine*, 428 Preston Street, Baltimore, Maryland 21202. 3:172, July-August, 1975.
- "A Computers Analysis of Football Injuries," Johnson, J. and Ritter, M. *The Journal of Sports Medicine*. 3:168, July-August, 1975.
- "A Twenty-Minute Stretch-Flexibility Warm-up Program," Deming, H.T. *Athletic Journal*, 1719 Howard Street, Evanston, Illinois 60202. 56:32, January, 1976.
- "Body Fluid Balance in Athletics," Taylor, S. *Scholastic Coach*, 50 West 44th Street, New York, New York 10036. 45:58, December, 1975.
- "Cleat-surface Friction on New and Old Astro turf," Bowers, K.D. et al. *Medicine and Science in Sports*. 1440 Monroe Street, Madison, Wis. 53706. 7 (2):132-5, Summer, 1975.
- "Current Concepts in Management of Cervical Spine Fractures and Dislocations," Thompson, R.C., Morris, J.N., and Jane, J. *The Journal of Sports Medicine*, 3:159, July-August, 1975.
- "Flexibility Stretching," Allers, V. *Athletic Journal*. 56:34, December, 1975.
- "How To Avoid Groin Pulls," Kovach, D. *The Physician and Sportsmedicine*, 4015 West 65th Street, Minneapolis, Minnesota 55435. 3:110, November, 1975.
- "If Sports Medicine is Your Bag — Equip It Well," Mayne, B. *The Physician and Sportsmedicine*. 3:67, September, 1975.
- "Is There Anything Positive About Negative-Heel Shoes?" Martin, N. *Today's Health*, 535 North Dearborn Street, Chicago, Illinois 60610. 53:36, December, 1975.
- "Isolated Avulsion of the Tibial Attachment of the Posterior Cruciate Ligament of the Knee," Meyers, M.H. *Journal of Bone and Joint Surgery*, 10 Shattuck Street, Boston, Mass. 02115. 57(5):669, July, 1975.
- "Letter: Anabolic Steroids in Athletics," Khosla, T. *British Medical Journal*, 3(5976):158, July 19, 1975.
- "Ligamentous Injuries of the Knee in Skiing," Marshall, J.R. et al. *Clinica Orthopedica*, University of Padova, Padua, Italy. 108:196, May, 1975.
- "Looking at Eye Care in Athletics," Brown, B., Doctor, J., Goldman, J., and Keates, R. *The Physician and Sportsmedicine*. 3:31, November, 1975.
- "Metabolic Cost of Negative Work," Jones, A. *Athletic Journal*. 56:40, January, 1976.
- "Proceedings: The Complexity of Football Injuries of the Knee Joint," Maguire, M.G. *Journal of Bone and Joint Surgery* (Br.). 57(2):252, May, 1975.
- "Put Pressure on for Quicker Recovery," Surdez, J. *The Physician and Sportsmedicine*. 3:115, September, 1975.
- "Secular Trend in Body Size Among College Athletes," Polednak, A. P., *American Journal of Physical Anthropology*, 36th Street at Spruce, Philadelphia, Pa. 19104. 42(3):501, May, 1975.
- "Stopping Spear Tackling - Will the Challenge Be Met?" Schwank, W. *The Physician and Sportsmedicine*. 3:72, September, 1975.
- "Supportive Care of the Injured," Wickel, D. *Scholastic Coach*. 45:68, November, 1975.
- "The Anterior Drawer Sign: What Is It?" Marshall, J.L., Wang, J.B., Furman, W., Girgis, F.G., and Warren, R. *The Journal of Sports Medicine*. 3:152, July-August, 1975.
- "The Care and Feeding of Today's College Athlete," Frank, S. *Today's Health*. 53:24, November, 1975.
- "The Diagnosis and Treatment of Acute Ankle Sprains," VanVden, R.T., *West Virginia Medical Journal*, Box 1031, Charleston, West Virginia 25324. 71 (8):204, August, 1975.
- "The Future of Exercise - An Opinion," Jones, A. *Athletic Journal*. 56:48, December, 1975.
- "The Jogging Shoe: Some Comparison," Conrad, N.L. *Journal of American Podiatry Association*, 20 Chevy Chase Circle, N.W., Washington, D.C. 20015. 65(6), 607, June, 1975.
- "The Quantitative Evaluation of the Use of Oral Proteolytic Enzymes in the Treatment of Sprained Ankles," Craig, R.P. *Injury*, John Wright & Sons, Ltd., 42-44 Triangle West, Bristol, England. 6(4):313, May, 1975.
- "The Short-Leg Syndrome," Subotnick, S. *The Physician and Sportsmedicine*. 3:61, November, 1975.
- "What Do You Really Know About Exercise?" Maness, B. *Today's Health*. 53:14, November, 1975.
- "What Should Athletes Eat? Unmixing Folly and Facts," Nelson, R. *The Physician and Sportsmedicine*. 3:66, November, 1975.

# Letters To The Editor

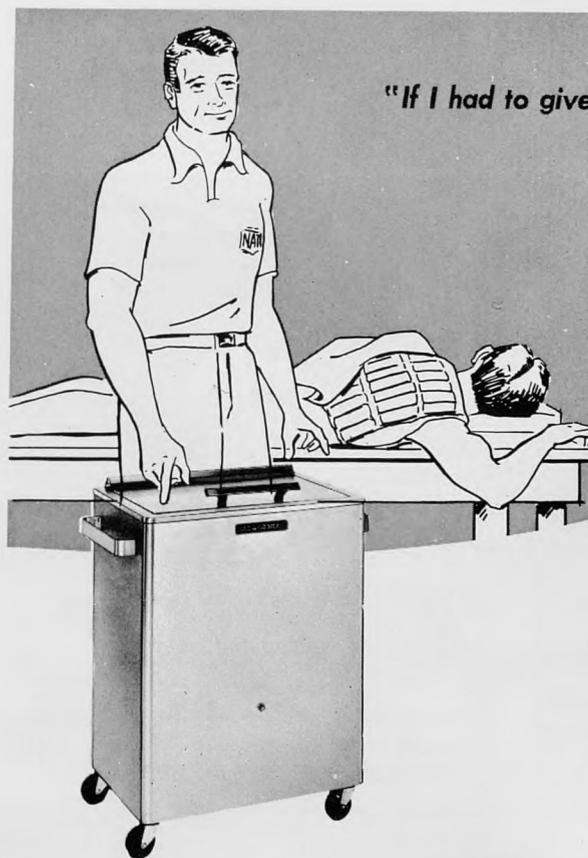
Dear Editor:

The Article, *Legal Implications Concerning the Use of Physical Therapy Modalities by Athletic Trainers*, by Baker/Rode (Vol. 10, No. 4, Dec. 1975, pp 208-211) is long overdue, particularly as a source of information to trainers in New York State.

It is unfortunate that New York's Physical Therapy practice act was excluded from the aforementioned article. The illegal use of Physical Therapy Modalities has been and continues to be a burden on the legal practice of the Physical Therapist. However, for the purposes of edification, trainers are prohibited the use of physical therapy modalities by exclusion. New York has the oldest Physical Therapy practice act

in the United States which dates prior to WW II. Physical Therapy is the practice of medicine in that limited field by definition and use of that title is prohibited. I might add that unauthorized practice and unauthorized use of title under the law is Class A Misdemeanor in the criminal sense and, of course, legal proceedings by the Education Department are not uncommon.

Our practice act is Article 131-A



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#6530-6536 of the Education Law. The practice is further protected by New York State Health Department Code Title 10, Chapter V Section 720.16, 720.17, 731.5, 731.4 and 212.3. Physical Therapy is one of the five licensed medical professions in New York. We make every effort to police ourselves. In this respect, complaints are few. Almost all over and covert acts against the practice take place by others not in compliance with regulations as written.

It is essential, as stated in the last paragraph of the aforementioned article, that all trainers assess the legal implications of their practice so there are not smudges on athletic practice and so trainers do not hurt a similar peer group who have rights under the law.

Sincerely,

Charles F. Moyer, P.T., A.T.,C.  
Co Chairman  
Committee on Ethics  
New York Chapter  
American Physical Therapy  
Association  
52 Granger Street  
Canadaigua, New York 14424

Dear Editor:

Although the advertisements in *Athletic Training* are not necessarily endorsed by the National Athletic Trainer's Association I would like to bring up a point for consideration by the members of the Association regarding a recent advertisement.

On page 166 of the September 1975 and page 207 of the December 1975 *Athletic Training* was an advertisement for chewing gum. It states, "Chances are that your athletes already chew gum during games;" it also states, as a good point, its electrolyte correcting as well as its saliva-stimulating properties. I can find no fault with the latter two points, but I have violent objections to the first. What would happen if an athlete in a contact sport was to be rendered unconscious while chewing gum? Respiratory problems and unconsciousness can occur due to a foreign body, such as chewing gum, falling back on the pharynx or further to the trachea or bronchi. I do not allow any of our players to compete while chewing gum. I should not have to go in and get the gum out if the player becomes unconscious.

A trainer's job is one of prevention, and this would seem to me a way to prevent fatal injury.

Very truly yours,

Peter A. DeMaria, Jr.  
Student Trainer  
William Penn Charter School  
Glenside, Pennsylvania •

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# CALENDAR OF COMING EVENTS

by  
JEFF FAIR, A.T.,C.  
OKLAHOMA STATE UNIVERSITY

## MAY 1976

14-15 - Seventh annual ECU Sports Medicine Conference. Contact Rod Compton, Sports Medicine Division, East Carolina University, Greenville, N.C. 27834.

## JUNE 1976

7-11 - Undergraduate - graduate workshop for 2 semester credits taught by Ken Rawlinson: Southeastern Oklahoma State University. Contact Dr. Don Parham, Director of Athletics, Southeastern Oklahoma State University, Durant, Oklahoma 74701.

12 - District No. 3 of the NATA will hold an evening meeting at the Sheraton Boston Hotel, site of the NATA Annual Convention.

13 - N.A.T.A. Certification: Boston, Massachusetts. Contact N.A.T.A. Board of Certification, Post Office Box X18, Ann Arbor, Michigan, 48107.

13-16 - The National Athletic Trainers Association will hold its annual convention at the Sheraton Boston Hotel, Prudential Center, Boston, Massachusetts 02199. For more information, contact Mr. Fred Hoover, P.O. Box 248, Clemson, S.C.

14-16 - The Neck, Shoulder and Upper Extremity in Sports, Committee on Sports Medicine of the American Academy of Orthopaedic Surgeons: Cleveland, Ohio. Contact American Academy of Orthopaedic Surgeons, Box 6310-A, Chicago, Illinois, 60680.

20-23 - Seminar on Sports Medicine: Maine Maritime Academy, Castine, Maine. Contact Len Tyler, Coordinator, Summer Programs, Maine Maritime Academy, Castine, Maine, 04421.

24-26 - Postgraduate Course on Upper Extremity, Rainbow Sports Medicine Center, Cleveland Ohio. Contact Lynn Wallace, L.P.T., Rainbow Sports Medicine Center, 2103 Adelbert Road, Room 486, Cleveland, Ohio 44106.

26 - 18th National Conference on Medical Aspects of Sports, American Medical Association: Dallas, Texas. Contact Department of Environmental Public and Occupational Health, American Medical Association, 535 N. Dearborn Street, Chicago, Illinois, 60611.

28-30 - Postgraduate Course on Lower Extremity, Rainbow Sports Medicine Center, Cleveland, Ohio. Contact Lynn Wallace, L.P.T., Rainbow Sports Medicine Center, 2103 Adelbert Road, Room 486, Cleveland, Ohio 44106.

*Athletic Training* will be happy to list events of interest to persons involved in sports medicine, providing we receive the information at least two months in advance of publication. Please include all pertinent information and the name and address of the person to contact for further information. This information should be sent to Jeff Fair, Athletic Department, Oklahoma State University, Stillwater, Oklahoma 74074. •

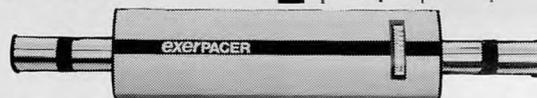
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# Injury Patterns During The First Three Days Of Football Practice Among Big Ten Schools

By

John W. Powell, A.T., C.  
Richard J. Carey, A.T., C.  
and  
Kenneth S. Clarke, Ph. D.

Each year as football season begins in earnest, the knowledge that some athletes will be hurt is ever present. Over the past few years, a number of safety-related modifications in rules for competition, pre-season practice and starting time of practice sessions have been promulgated by the

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*JOHN W. POWELL is currently a graduate student at The Pennsylvania State University, working toward his Doctorate in Health Education. He received a Bachelor of Science degree in Biological Science from Michigan State University in 1966. He then spent four and a half years teaching on the secondary level. In 1970, he received a master of Science degree in Health and Safety from Indiana University and also was certified by the National Athletic Trainers Association. From 1971-75, he served as athletic trainer in the Office of Physical Education at the United States Military Academy.*

*RICHARD J. CAREY is currently a graduate student at The Pennsylvania State University, working toward a Master of Science degree in Health Education from the University of Washington in 1971. In 1973, he was certified by the National Athletic Trainers Association and served as a high school athletic trainer for two years.*

*KENNETH S. CLARKE, Ph.D. is Professor and Chairman of Health Education at The Pennsylvania State University. He is the Director of the NAIRS Program which is housed at the University Park Campus.*

NCAA. One of the regulations set forth by the NCAA, for example, as stated in Article Three, Section 1, Part B of the 1975-76 NCAA Manual (Page 46) is:

Physical activity during the first three days of the preseason practice period shall be limited to non-contact conditioning drills. No football gear or protective equipment other than headgear, shoes and porous lightweight jerseys and pants shall be worn by players during the practice sessions in this three-day period.

During this period of time, acclimatization of the athlete, basic screening of skills, and general sports conditioning is emphasized.

Since the establishment of these regulations concerning early session practice there has been some concern over the number of injuries which occur during these first three days. In particular, one school within the Big Ten inquired of the National Athletic Injury/Illness Reporting System (NAIRS) whether their injury experience was similar to others in that Conference. The Big Ten are among 45 colleges and 15 high schools who utilized NAIRS during the 1975 football season.

The purpose of this report is to present 1975 data in this regard for preliminary examination and to demonstrate some of the capability of NAIRS for prompt examination of worth inquiries from the field. (The actual turnaround time for programming and computer time to obtain the following information was less than one hour.)

In order to accurately discern the following tables, one should be aware of the definitions of a reportable case injury and the criteria for the categories of severity of injury utilized by NAIRS. A reportable case is an injury<sup>3</sup>/<sub>4</sub> illness which keeps an athlete out of participation the day after the day of onset. Several particular injuries (concussions, dental injury) are also reportable even if this criterion is not met. As for severity:

1. MINOR - Injury/illness which did no prevent the athlete from returning to a reasonable effective participation capability within seven calendar days from onset.
2. MODERATE - Injury/illness which exceeds the criteria for "minor" but return to competition is within three weeks. In addition, fractures and dental injuries with time loss within seven days are elevated to "moderate."
3. MAJOR - Injury/illness which restricts the athlete from participation for a period of longer than three weeks.
4. SEVERE - Permanent disability of societal significance (e.g. death, quadriplegia, amputees, etc.). (Note: Only sport-related cases are analyzed in this report.)

## FINDINGS

1. Approximately five percent of Big Ten football players received a reportable injury during the first three days of Fall (1975) football practice. The bulk of these (82.4%) were of minor significance. Less than 1 of 100 received a major injury. Moreover, the considerable range of injury frequency among Big Ten teams (Table 1) precludes much confidence in these findings as characterizing the nature of the problem at an average institution. The variation may be due to any of a variety of factors including preseason preparation recommendations, medical management preferences, or plain chance.
2. While a variety of injuries were represented, definite patterns of injury were revealed. The hamstring strain was the predominant injury incurred. Sprains and strains of the lower extremity during running drills was the general injury. Wide receivers, running backs, and secondary were the most vulnerable. (Table 7)
3. Receiving particular scrutiny was

the relative rate of injury among different categories of performance proficiency. Table 9 suggests a disproportionate share of injuries occurring among "substitutes" (those not expected to play in every game) in favor of the "stars" (those with exceptional skill at this level of competition). However, statistical significance was not reached, and additional study is needed to learn if the direction of these results are stable.

4. Other factors of interest, especially period of practice (Table 8), did not reveal patterns at this time which would in turn identify

particular courses of preventive action.

5. Of final interest is analysis of the five major injuries experienced (Table 10). All five were incurred in the morning; none on the third day. All were incurred by "substitutes"; four were to the lower extremity while running. Specific diagnosis, position, and occasion present no pattern.

#### CONCLUSION

Candidates for the football squad cannot afford to be non-competitive during early season practice. Yet, the advent of the special rules for the

first three days may have lulled some athletes into neglecting a well-rounded preseason conditioning program which emphasizes flexibility as well as strength and endurance. Emphasis on preventive procedures in light of these findings thus appear warranted and feasible. It may be of interest to the athletic trainers of the schools at each end of this range to share their respective details of these three days to find procedures which were not in common. A repeat examination of injuries experienced among Big Ten Schools will be conducted in 1976.

Table 1. Injury Frequency by Institution

1092 Athletes	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	Total
Minor	16	7	5	2	4	4	3	1	0	0	42
Moderate	0	1	0	3	0	0	0	0	0	0	4
Major	0	0	2	1	1	0	0	1	0	0	5
Severe	0	0	0	0	0	0	0	0	0	0	0
Total	16	8	7	6	5	4	3	2	0	0	51

Table 2. Injuries by Severity and Site -- Totals and (Rates)\*

1092 Athletes	Head Neck Spine	Shoulder Arm	Forearm Hand	Torso	Hip Leg	Knee	Ankle Foot	Misc.	Total
Minor	1	3	2	4	15	7	4	6	42(3.8)
Moderate	0	0	0	0	1	1	2	0	4(0.4)
Major	1	0	0	0	2	2	0	0	5(0.5)
	2 (0.2)	3 (0.3)	2 (0.2)	4 (0.4)	18 (1.6)	10 (0.9)	6 (0.5)	6 (0.5)	51(4.7)

\*Cases / 100 Athletes

Table 3. Nature of Injury

1092 Athletes	Frequency	%	Rate/100
General Trauma	9	17.6	0.9
Neurotrama	1	2.0	0.1
Sprains	12	23.5	1.1
Strains	20	39.2	1.8
Fractures	1	2.0	0.1
Misc. Orthopedic	3	5.9	0.3
Misc. Other	5	9.8	0.5

Table 4. Occasion of Injury

1092 Athletes	Frequency	%	Rate/100
Skill Training	17	33.3	1.6
Conditioning	33	64.7	3.0
Lockerroom/ Showerroom	1	2.0	0.1

Table 5. Time of Day of Injury

1092 Athletes	Frequency	%	Rate/100
Morning	27	52.9	2.5
Afternoon	22	43.1	2.0
Evening	1	2.0	0.1
Unclassified	1	2.0	0.1

Table 6. Activity When Stricken

1092 Athletes	Frequency	%	Rate/100
Tackled	1	2.0	0.1
Blocking	2	3.9	0.2
Throwing	1	2.0	0.1
Running and Sprint Drills	22	43.1	2.0
Unintended Collision	6	11.8	0.6
Agility Drills	6	11.8	0.6
Skill Drills	10	19.6	0.9
Other	3	5.9	0.3

Table 7. Injury Rate by Position  
(Actual and Adjusted for Depth in Position)

1092 Athletes	Actual Frequency	%	Rate/100	Number of Persons in Position	Adjusted %	Adjusted Rate/100
Quarterback	1	2.0	0.1	1	2.0	0.1
Running Back	7	13.7	0.6	2	6.9	0.3
Wide Receiver	10	19.6	0.9	2	9.8	0.4
Tight End	2	3.9	0.2	1	2.0	0.2
Kicker	1	2.0	0.1	1	2.0	0.1
Secondary	12	23.5	1.1	4	5.9	0.3
Linebacker	2	3.9	0.2	3	1.3	0.1
Offensive Line	10	19.6	0.9	5	3.9	0.2
Defensive Line	5	9.8	0.5	5	2.0	0.3
Unclassified	1	2.0	0.1	0	0	0

Table 8. Injury Frequency by Period of Practice

1092 Athletes	Frequency	%
1st Fourth	12	23.5
2nd Fourth	8	15.7
3rd Fourth	11	21.6
4th Fourth	10	19.6
Post-Practice	2	3.9
Unknown	8	15.7

Table 9. Injuries by Performance Level

1092 Athletes	% of All Athletes	% of Inj. Athletes	Rate/100
Star	9.6	5.8	2.8
Regular	34.6	31.4	4.2
Substitute	55.8	62.7	5.2
Unclassified	0.2	--	--

Table 10. Major Injury Descriptions

1. Offensive Lineman, Substitute: Knee Sprain, MCL  
(Running - Conditioning - Drills - Morning of Day 1)
2. Running Back, Substitute: Hamstring Strain, Belly  
(Running - Conditioning - Drills - Morning of Day 1)
3. Secondary, Substitute: Knee Tenosynovitis, Acute  
(Running - Skill Training - Drills - Morning of Day 2)
4. Defensive Lineman, Substitute: Neck Contusion  
(Collision with person - Skill Training - Drills - Morning of Day 2)
5. Quarterback, Substitute: Hamstring Strain, Belly  
(Sprinting - Conditioning - Morning of Day 2) •

## GUIDE TO CONTRIBUTORS

*Athletic Training*, the Journal of the National Athletic Association, welcomes the submission of manuscripts which may be of interest to persons engaged in or concerned with the progress of the athletic training profession. The following recommendations are offered to those submitting manuscripts:

1. Eight copies of the manuscript should be forwarded to the editor and each page typewritten on one side of 8 1/2 x 11 inch plain paper, triple spaced with one inch margins.

2. Good quality color photography is acceptable for accompanying graphics as well as glossy black and white prints. Graphs, charts, or figures should be of good quality and clearly presented on white paper with black ink, in a form which will be legible if reduced for publication.

3. The list of references and citations should be in the following form: a) books: author, title, publisher with city and state of publication, year; b) articles: family names, initials and titles of all authors, title of article, journal title, with abbreviations accepted as per *Index Medicus*, volume, page year. Citations in the text of the manuscript will take the form of a number in parenthesis, (7), directly after the reference or name of author being cited,

indicating the number assigned to the citation in the bibliography.

4. It is the understanding of the editor of *Athletic Training* that manuscripts submitted will not have been either previously published nor simultaneously submitted to another journal. The author accepts responsibility for any major corrections of the manuscript as suggested by the editor.

5. It is requested that each submitting author include a brief biographical sketch and acceptable photograph of themselves. Please refrain from putting paper clips on any photograph.

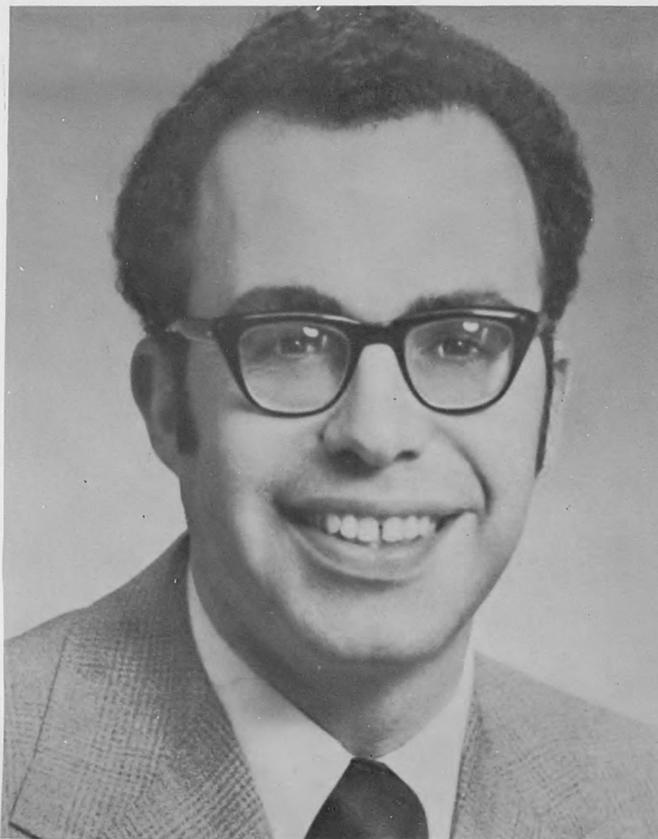
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7. Unused manuscripts will be returned, when accompanied by a stamped, self-addressed envelope.

Address all manuscripts to:

Clint Thompson  
Department of Athletics  
Michigan State University  
East Lansing, Michigan 48824

# Candidate for President



**Francis J. "Frank" George**

Frank George has been employed as the head athletic trainer at Brown University, Providence, Rhode Island since 1966. He is married and the father of four children. In 1962 he received a B.S. degree in physical education from the University of Massachusetts. In 1963 he received his Certificate of Physical Therapy from Boston University, where he was awarded an OVR Scholarship. In 1966 he received an honorable discharge from the U.S. Army after serving as a First Lieutenant at Fort Sam Houston in Texas and Fitzsimons General Hospital in Denver, Colorado.

Mr. George began in the athletic training profession as a student trainer at the University of Massachusetts, from 1958-61; football trainer at Medford High School, Medford, Massachusetts 1962; staff physical therapist and athletic trainer for the post athletic teams, Fitzsimons General Hospital 1964-66; from 1966 until the present time he has been head athletic trainer at Brown University. At Brown he has been the Host Athletic Trainer for the 1973 Heptagonal Track and Field Meet, for the 1973 New England Track and Field Meet, and for the 1974 New England Swim Meet.

Mr. George received his National Athletic Trainers Association certification in 1970. He has been an officer in the National Athletic Trainers Association, as Vice President 1973-74; and as Director of District One 1970-74; he is also serving on two ad

hoc committees: one to study the feasibility of N.A.T.A. becoming its own Accrediting Agency and one on Professional Liability Insurance. He is also serving as liaison representative to the American Physical Therapy Association. He has been a member of the District Membership Committee since 1968 and was Program Chairman for the Eastern Athletic Trainers Association Meeting in 1970.

He is a member of the following professional organizations: the National Athletic Trainers Association, the Eastern Athletic Trainers Association, the American College of Sports Medicine, the American Physical Therapy Association and its Rhode Island Chapter.

Mr. George has lectured or presented papers to many sports medicine and physical therapy organizations. He has manned the former N.A.T.A. Scientific Exhibit at an American Medical Association Meeting, and led many local workshops and meetings for high school trainers and coaches. He has written articles on fluid and electrolyte replacement, conditioning, nutrition for the athlete, and the profession of athletic training.

He has served the last two years as President of the National Athletic Trainers Association and was olympic trainer at the 1976 Winter Olympics.

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June 28-July 1	Indiana State University - Terre Haute, IN	Bob Behnke
June 28-July 1	Lamar University - Beaumont, TX	Paul Zeek
June 28-July 1	Marshall University - Huntington, WV	Vic Winburn
June 29-July 1	Wayland Academy - Beaver Dam, WI	Gordon Stoddard
July 5-8	Clemson University - Clemson, SC	Fred Hoover
July 12-15	Emporia Kansas State College - Emporia, KS	John Baxter
July 12-15	Western Illinois University - Macomb, IL	Duke LaRue
July 19-22	Bowling Green State U. - Bowling Green, OH	Bob Livengood
August 2-5	North Dakota State University - Fargo, ND	Denis Isrow
August 8-11	Westchester State College - West Chester, PA	Phil Donley
August 9-12	Northeastern University - Boston, MA	Koko Kassabian
August 16-19	Central Washington State - Ellensburg, WA	Gary Smith



### IN MEMORIAM

**Richard Lyons**, 28, Athletic Trainer at Southwest Missouri State University since 1970 died of a probable cerebral hemorrhage on November 15, 1975. Lyons, a native of Collinsville, Illinois, graduated from Eastern Illinois University and was a graduate assistant in athletic training at Western Illinois University where he obtained his masters degree. Lyons served as head trainer for the 1974 NAIA National Track and Field Championships, was a member of the NATA Research and Injury Committee. We are all saddened by this loss.

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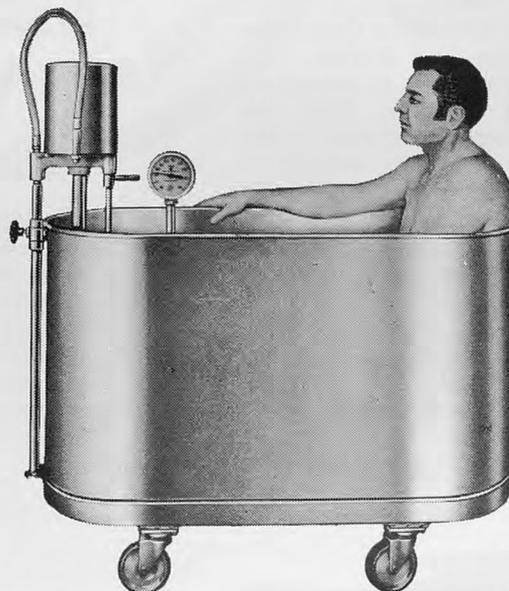
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For further information write or call the following:

- June 28 - July 2    **EAST TEXAS STATE UNIVERSITY - COMMERCE, TEXAS**  
 Dr. Margo Waters  
 Women's Athletics & Physical Education  
 East Texas State University  
 Commerce, Texas 76133  
 Phone: 214-468-2509
- July 12 - 16        **NORTHERN COLORADO UNIVERSITY - GREELEY, COLO.**  
 Dan Libera, Athletic Trainer  
 Departments of Athletics  
 University of Northern Colorado  
 Greeley, Colorado 80639  
 Phone: 303-351-2522
- July 19 - 23        **OHIO STATE UNIVERSITY - COLUMBUS, OHIO**  
 Linda Daniel, Athletic Trainer  
 Intramural Office - 404 W. 17th Ave.  
 The Ohio State University  
 Columbus, Ohio 43210  
 Phone: 614-422-9444

- July 26 - 30        **PENN STATE UNIVERSITY - UNIVERSITY PARK, PA.**  
 Dr. Dorothy Harris  
 Center for Women and Sport - College HPER  
 Penn State University  
 139 White Building  
 University Park, Pa. 16802  
 Phone: 814-865-7591
- August 2 - 6        **NORHEASTERN UNIVERSITY - BOSTON, MASS.**  
 Jeanne Craigie, Health Service  
 Northeastern University  
 Huntington Avenue  
 Boston, Mass. 02114  
 Phone: 617-437-2772
- August 9 - 13      **FLORIDA STATE UNIVERSITY TALLAHASSEE, FLA.**  
 Marlene Furnell  
 204 Tully Gymnasium  
 Florida State University  
 Tallahassee, Florida 32306  
 Phone: 904-644-2087
- August 16 - 20    **UNIVERSITY OF OREGON - EUGENE, OREGON**  
 Dr. Lou Osternig  
 Department of HPER  
 University of Oregon  
 Eugene, Oregon 97403  
 Phone: 503-686-3383
- NAGWS**  
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 Miss Judy Devine  
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- Cramer Products, Inc. contact:  
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 Gardner, Kansas 66030  
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Dear N.A.T.A. Members:

This past November, the National Football Head and Neck Injury Registry program has been mobilized at the Temple University Center for Sports Medicine and Science. The goal of this program is to concretely establish, for the first time, the incidence of serious injuries to the head and neck directly related to tackle football. As Chairman of the N.A.T.A. Research Committee, I welcome the opportunity to work personally on this project, which is so dangerously late in being developed. I am sure the administration, membership, and colleagues of the N.A.T.A. will assist in the compiling of this information, which will enable us to scientifically document the scope of these most serious injuries.

Sincerely yours,

Theodore C. Quedenfeld  
 Chairman, Research  
 Committee  
 National Athletic  
 Trainers  
 Association

## NATIONAL HEAD AND NECK REGISTRY

A National registry for football head and neck injuries has been established at the Temple University for sports medicine and science. The need for a mechanism to collect such injury statistics has become evident with the apparent increase in both serious catastrophic injuries affecting the central nervous system and spinal cord.

Individuals with knowledge of injuries occurring from 1971 to 1975 involving sandlot, high school, college and professional tackle football players which meet the following criteria are requested to respond; (1) Head and neck injuries requiring hospitalization for more than 72 hours. (2) Head and neck injuries requiring surgical intervention. (3)

Head and neck injuries involving fractures and dislocations. (4) Head and neck injuries resulting in death. It is requested that all pertinent information including names of injured player, school or organization, date and nature of injury be sent to: Temple University Center for Sports Medicine, 3401 North Broad Street, Philadelphia, Pennsylvania 19140.

The University of Virginia is hosting a workshop titled "The Art and Science of Sports Medicine", June 23-26, 1976, at the University of Virginia in Charlottesville. For more information, contact Joe Gieck, Head Athletic Trainer, University of Virginia, Charlottesville, Va. 22903. •

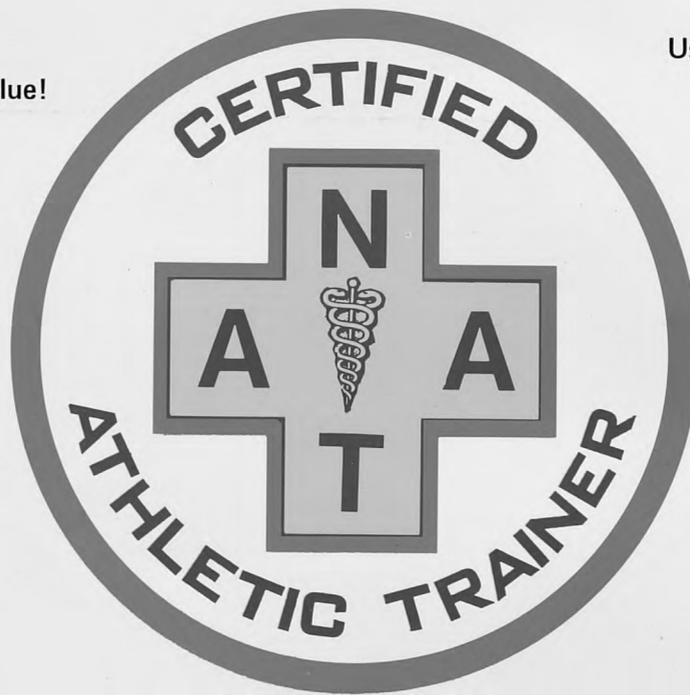
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