ATHLETIC TRAINING

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION, INC.

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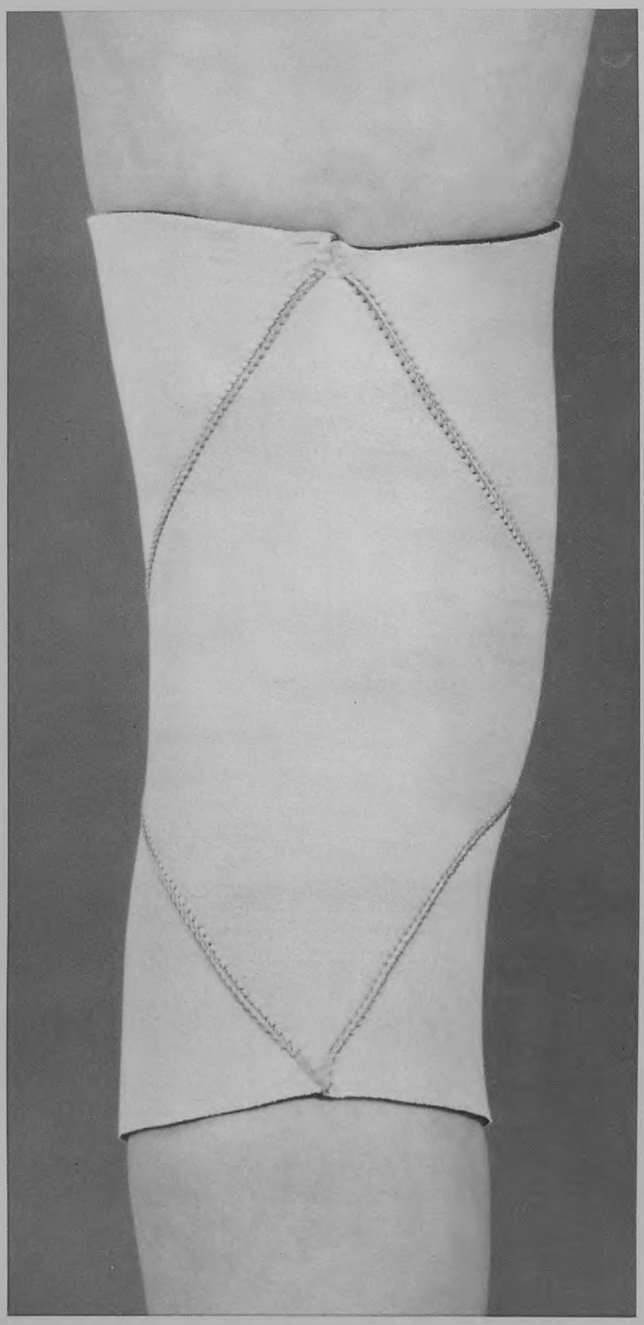

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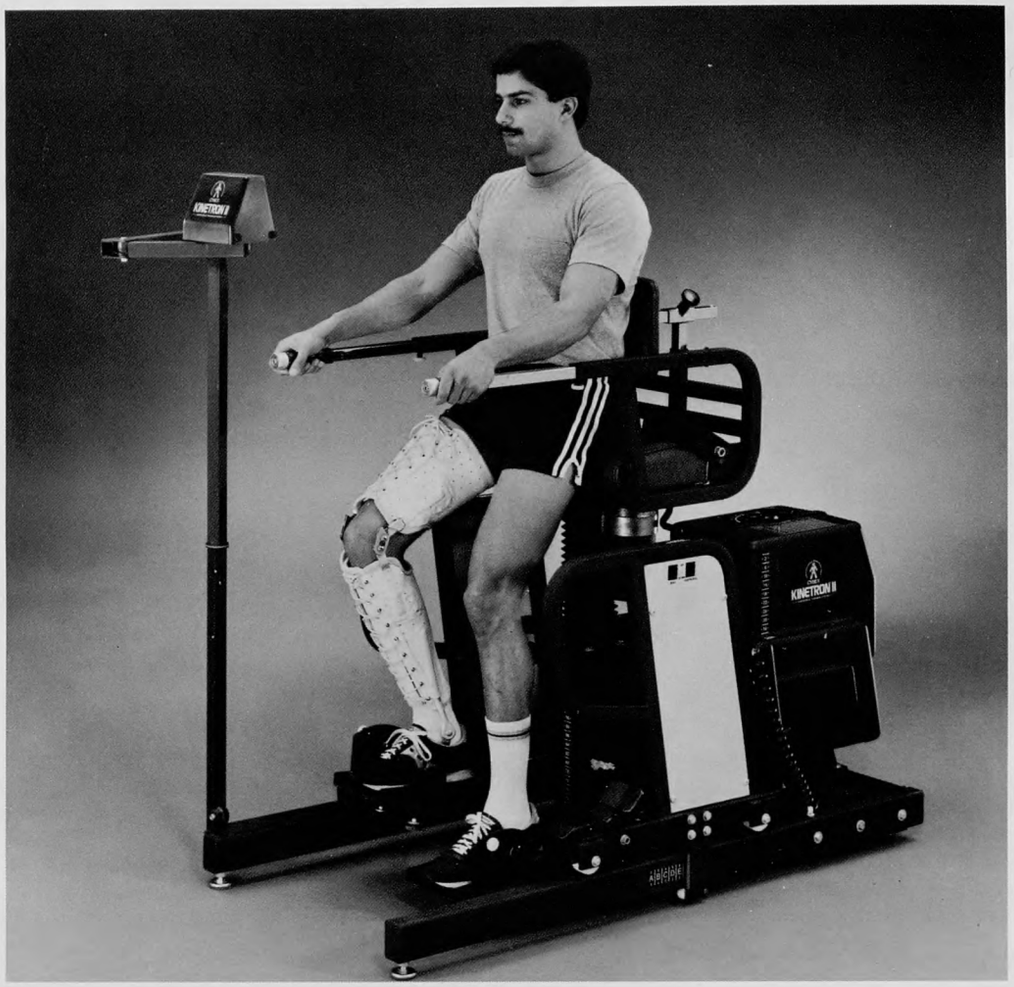

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Features

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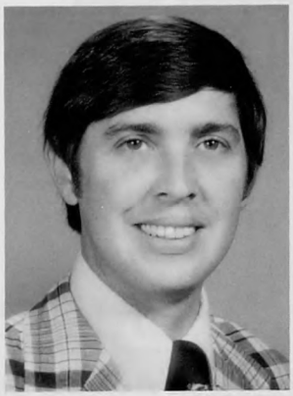
Editor-in-Chief Comments



Steve Yates, ATC, M.Ed
Wake Forest University
Winston-Salem, NC 27109

I trust everyone had a healthy and successful fall season. I know that many of you are also looking forward to the bowl games and the winter sports. Please continue to keep in mind contributions to "your" Journal so we can keep the membership abreast of new advances in the field of Sports Medicine.

Reminder . . .

If you are moving or have changed addresses please notify the National Office within the 30-day requirement so your Journal will be delivered.

Welcome . . .

I would like to welcome Mr. Brian Barry, Assistant Athletic Trainer at the University of Colorado. Brian will be in charge of the **Current Literature** section.

Correction . . .

The article "The Distinction Between Drug Use and Abuse" published in the Summer 1985 edition was co-authored by Dr. Arlette Perry and Mr. Jonathon Sanders.

Best Wishes . . .

The staff of the Journal wishes you and yours the best holiday season and a healthy Happy New Year.

SY (SSSA) ⊕

Letter to the Editor

(EDITOR'S NOTE: This was a most meaningful letter commending the athletic trainers who were involved in the 23rd Olympiad. During the transition of editors the letter was temporarily misplaced, but even at this late date I feel it is worthy of publication.)

Dear Editor:

As Director of Athletic Training Services for the Los Angeles Olympic Organizing Committee I am deeply concerned and disappointed at the lack of recognition given the NATA trainers who worked at the 23rd Olympiad last summer. Other professional organizations have given either individual or group recognition to their members for a job well done. The NATA trainers have received no such recognition.

The Olympics provided our profession a rare showcase for our abilities. Hundreds of health care professionals were educated as to what skills the athletic trainer possesses. Physicians, emergency care nurses, physical therapists and health care administrators were exposed to the varied skills the athletic trainer uses with athletes on a daily basis. It was very positive public relations; no explanation of what we do is as succinct as our daily actions with athletes. State legislators and city officials became acquainted with the athletic trainer. It has never been as clear to me as the time with the L.A.O.O.C. I spent explaining what an athletic trainer is, and does, how few people outside the university or professional athletic setting realize our profession exists. They got an education this summer, thanks to the endless hours of service volunteered by so many trainers. They were outstanding ambassadors for our profession.

I realize the restrictions the L.A.O.O.C. placed on recruitment of volunteers to California disappointed many N.A.T.A. members. As a result of housing restrictions and other considerations too numerous to mention we were able to use only a few out of state trainers. "Pinky" Newell was one of the out of state trainers.

In a letter I received from "Pinky" a week before he died he said that he was proud to have been a part of the games and very proud of the trainers who participated. He said, "We've come a long way as a profession, but don't loose sight of how much farther we have to go. Keep working, remembering that a victory for one of us is a victory for all of us professionally. And our team had a hell of a victory this summer."

I never got a chance to thank him again for his support, but I wanted to share his compliment with all the trainers who worked the 1984 Olympics. They earned in the final report of the Health Services the recognition of being the core of the sportsmedicine staff serving the athletes of the 23rd Olympiad.

Sincerely,

Gail Weldon, ATC
Director of Athletic Training Services
Los Angeles Olympic Organizing Committee

Brochure Requests

Requests for the brochure entitled "Careers in Athletic Training" should be sent to the National Office at 1001 East 4th Street, Greenville, N.C. 27834. Single brochures are supplied upon request at no charge. NATA officers and committees, schools having an approved athletic training curriculum, and those having an apprenticeship program are furnished multiple copies of the brochure at no charge.

President's Message

Dear NATA Members:

Our national public relations effort is off to a very fine start and we have already seen encouraging results. The Associated Press recently released an article by one of its leading sports writers which has appeared in numerous newspapers throughout the country and has resulted in inquiries through the National Office and our Association officers. Mr. Otho Davis, Executive Director, and myself have both been invited to participate in more radio interviews than our schedule will permit. Several have participated in radio and talk shows and the callers have been referred to our National Office and chairpersons. Television Public Service Announcements were released on October 1, 1985 featuring Irv Cross and response to these announcements has been extremely positive.

Several of our allied associations have included presentations from various members of our Association in their periodicals. Your Board of Directors will be meeting in the early part of 1986 and will evaluate our first half-year in the Public Relations area. At this point we are more than pleased with the work of Timothy Communications.

Please mark the dates of our Las Vegas Meeting on your calendar (June 9 through June 12, 1986) as there is a slight change from last year.

I would like to take this opportunity to wish you and your family a very enjoyable Holiday Season.

Best Wishes for an exciting New Year!

Bobby

Bobby Barton, ATC

The Trainer's Role in the Management of Ocular Injury

David J. Smith, MD
Edited by:
Don Kaverman, ATC

Sports related ocular injuries are a leading cause of visual loss and disability in this country. Approximately 70,000 sport related eye injuries occur annually, with racquet-sport injuries leading the list. Frequently, the athletic trainer is the first paramedical professional to deal with the athlete who has suffered an ocular injury. The purpose of this paper is to aid the athletic trainer in managing these injuries.

Each athletic season should begin with a visual screening exam for the purpose of detecting those athletes with visual impairment. A vision chart in the locker room is an important piece of equipment. A split end who runs a "4.4" 40 year dash, but who has 20/400 vision, is not going to be able to see the ball. Identification of near-sighted or amblyopic (lazy-eye) athletes is of primary importance. Such athletes can be treated and greatly benefit by such a screening program.

In order to deal with ocular injuries, a trainer should have an adequately equipped first aid kit. The following items would be considered essential for assessing and treating ocular injuries.

1. A vision card - one must always attempt to get a visual acuity in each eye.
2. A pen light or flashlight with good batteries
3. A blue filter for the pen light or flashlight
4. Cotton tip applicators
5. Sterile ocular irrigating solution
6. Sterile eye patches
7. Plastic eye shields
8. Fluroscein strips
9. Tape
10. A plunger to remove contact lenses
11. Proparacaine eye drops
12. Antibiotic drops and ointment

The following are general guidelines for the trainer in his or her assessment of injured athletes.

First, allow the patient to get himself or herself together. Many times the patient is overcome emotionally by the injury and is not able to cooperate with the examiner. Therefore, it is important to initially comfort and reassure the patient before attempting to assess the degree of injury. many times athletes are lying on the ground or sitting on the bench in obvious discomfort, and a doctor or coach, etc., are attempting to pry open their eyelids. This only causes the patient to have more discomfort and the "lids always win the battle". Therefore, allow the patient to get over the initial shock of the injury before proceeding with the exam.

It is also very important to get a history - ask the athlete exactly what happened. This will give you some idea as to what to expect when looking at the eye.

The most important point in the evaluation of any eye injury is to ALWAYS get a vision. If there is no vision card, at least record that the patient can see fingers at such and such a distance. This is important medico-legally and will help you to make an intelligent evaluation of the problem.

Evaluation of the Eye

The trainer can evaluate an ocular injury by following a systematic exam.

First, a vision must be obtained. Secondly, the lids should be inspected for any swelling, lacerations, or foreign bodies. The orbit should be inspected for any signs of fracture. Examination of the pupils is very important. A good light should be used and the athlete should be instructed to look at a distant object. The pupil should be checked for symmetry and reaction to light and accommodation (near-vision). Any abnormality in pupil size should be noted. A dilated pupil may be indicative of a head injury or a serious injury to the optic nerve. A pupil that is elliptical may be indicative of a corneal laceration.

Dr. Smith is Assistant Surgeon of the General Ophthalmology Service, Wills Eye Hospital, Philadelphia, PA 19107.

Ocular motility should be elevated. The patient should be checked to make sure that the eyes can move in all fields of gaze, horizontally and vertically. Patients with orbit fractures may not be able to elevate their injured eye due to entrapment of the inferior rectus muscle in the fracture site. A "blow-out" fracture of the orbit occurs when the floor of the orbit fractures. When this occurs, the inferior rectus muscle of the eye may become entrapped in the fracture site and the patient will not be able to elevate the eye.

Next, the globe should be inspected for any evidence of hemorrhage or disorganization. The cornea should be evaluated for signs of abrasion, foreign body, or laceration. Fluroscein dye is placed on the cornea to check for abrasion. The chamber of the eye should be inspected for blood. The iris should be inspected for any signs of irregularity which would result in a distorted pupil.

Following the examination, the trainer can then treat the patient appropriately.

The following are common injuries in which the trainer can render helpful treatment.

1. *Corneal Abrasion* - occurs when the superficial layer of cells of the cornea is removed traumatically. It is painful, but usually heals within 24 hours. Treatment consists of antibiotics and pressure patch.
2. *Orbit Contusion* - occurs when objects strike the orbit. This is frequent in baseball, softball, hockey, boxing and racquet sports. Treatment consists of ice for 24 - 48 hours and then warm compresses.
3. *Sub-Conjunctival Hemorrhage* - is usually a minor injury due to leakage of superficial blood vessels on the surface of the eye. This resolves usually within 7 - 10 days with no treatment. One must be careful that there is no other associated trauma.
4. *Hyphema* - is a serious injury in which blood collects in the anterior chamber of the eye due to a rupture of one of the iris blood vessels. This requires immediate ophthalmic attention and usually necessitates hospitalization. The trainer should immediately place a shield on the eye and send the patient to the hospital.
5. *Loss of Ocular Motility* - causes the athlete to have double vision and may indicate an orbit fracture, skull fracture or damaged ocular muscle. Treatment again is immediate referral to an ophthalmologist.
6. *Lid Laceration* - is a common injury in street hockey. Treatment consists of placing a shield on the eye and referral.

As in any type of injury, know your limitations. Seek the help of qualified ophthalmologists who have a sincere interest in athletes and their special needs, and who welcome your referrals and are available when you need them. ⊕

CEU Credit Quiz

THE TRAINER'S ROLE IN THE MANAGEMENT OF OCULAR INJURY

David J. Smith, MD

As an organization accredited for continuing medical education, the Hahnemann Medical College and Hospital certifies that this continuing education offering meets the criteria for .3 hours of prescribed CEU credit in the program of the National Athletic Trainers' Association, Inc., provided the test is used and completed as designed.

To participate in this program, read the material carefully and answer the questions in the test. Mark the answers you select by placing an X in the proper square. Then tear out the test sheet, fill in your name, address and other information, and mail with $12 for processing to: Hahnemann University, School of Continuing Education, Broad and Vine, Philadelphia, PA 19102.

The NATA National Office will be notified of all members with passing scores over 70%. CEU credit will be issued to each member's record at that time. Participation is confidential.

Questions		a	b	c	d	e
1. Visual screening examinations should be performed routinely on athletes at the beginning of the athletic season.	a. True b. False					
2. In order to adequately deal with ocular injuries, the athletic trainer's first aid kit must be equipped with 1. a blue filter for a pen light or flash light 2. plastic eye shields 3. proparacaine eye drops 4. antibiotic eye drops and ointment	a. 1,2,3 b. 1,3 c. 2,4 d. 4 only e. 1,2,3,4					
3. The most important point in the evaluation of any eye examination is to determine a. if a fracture of the orbit is present b. whether or not hemorrhage has occurred c. the athlete's visual ability d. whether the pupils are equally round and reactive to light						

Questions		a	b	c	d	e
4. A pupil that is elliptical may be indicative of a a. serious injury to the optic nerve b. a corneal laceration c. head injury d. a and b above e. all of the above						
5. A "blow out" fracture of the orbit may limit the athlete's ability to gaze	a. laterally b. upward c. downward d. a and b above e. all of the above					
6. Fluroscein dye is placed on the cornea to check for signs of a. foreign body b. laceration c. abrasion d. b and c above e. all of the above						
7. Warm compresses are used in the treatment of subconjunctival hemorrhage.	a. True b. False					
8. Which of the following statements is/are true regarding corneal abrasion? 1. This occurs when the superficial layer of cells of the cornea is removed traumatically. 2. This is a painful condition. 3. Treatment consists of antibiotics and pressure patch. 4. Healing usually takes 7-10 days.	a. 1,2,3 b. 1,3 c. 2,4 d. 4 only e. 1,2,3,4					
9. Hospitalization is usually necessary when the athlete has a/an a. orbit contusion b. loss of ocular motility c. hyphema d. b and c above e. all of the above						
10. Loss of ocular motility causes the athlete to have double vision.	a. True b. False					

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If you are interested in submitting an article to be used in the Journal quiz please contact Don Kaverman at Ferris State College. All authors of published articles will receive 1.0 CEU.

(Make copies of this page.)

High Voltage Galvanic Stimulation:

Can there be a "state of the art"?

David J. Ralston, MS, ATC

This paper brings together various philosophies on the use of High Voltage Galvanic Stimulation into a possible guideline for treating injuries. A survey was taken of thirty Certified Athletic Trainers and Physical Therapists nationwide in order to find a random sample of preferred protocols. Also, the guidelines set forth by HVGS product manufacturers and pertinent literature on the topic were contrasted with the survey findings. Although distinct trends were found, these were not clinically tested nor proven most effective. It seems that frequency, duration, intensity, and polarity are all important parameters in HVGS therapy; however, polarity may be the most important of these. In treating acute versus non-acute injuries, survey results indicated that the acute stage may be most effectively treated with the positive polarity while chronic conditions may respond better to the negative pole. It appears, within the scope of this study, that a recommended guideline for the most effective use of High Voltage Galvanic Stimulation can be compiled on the basis of prevalent philosophies.

Based on articles written today and the varying opinions found among Athletic Trainers and Physical Therapists, High Voltage Galvanic Stimulation (HVGS) is perplexing in terms of its most effective use. Electrical stimulation has been a modality in physical medicine for many years; however, the classification of high voltage galvanic current has just recently come into being (1). There is very little published on the use of high galvanic therapy being utilized for injury management (7).

To clarify the definition of HVGS: "A continuous, waveless, unidirectional current, chemical in action, passes through the body and breaks up some of the molecules encountered into their component ions (all ions having either a positive or negative electrical charge or polarity); repels like charges and attracts unlike charges. When two dissimilar ions unite, a neutral molecule is formed, but when the galvanic current breaks this union, the original positive and negative ions are liberated (4)."

Purpose

On the assumption that HVGS is a new and virtually undiscovered modality in injury management, it wasn't surprising that there were discrepancies in how to best use it in treating athletic injuries. The question being addressed is, can a protocol for the most effective use of HVGS by synthesized from the knowledge we possess on the subject today? This paper attempted to assimilate various philosophies, recommendations, experiences, and research into a functional guideline for universal use. This is NOT intended, however, to be a recipe to follow in injury care.

Mr. Ralston is Assistant Athletic Trainer at the University of Michigan, Ann Arbor, MI 48109

Methods

In order to answer the questions posed by this study, three forms of information were used. Primarily, recommendations by the manufacturers of HVGS products were used as a foundation for comparison. A survey of 30 Certified Athletic Trainers at the intercollegiate level was conducted. A questionnaire was sent to each in an effort to determine their protocols and the sources of such. Of the 30 surveyed, 19 responded (63%). Additional literature was reviewed through a MEDLINE computer search.

Review of Selected Sources

Data from the 19 trainers surveyed disclosed that HVGS is used by many programs at the intercollegiate level (100% of those surveyed). However, methods of treatment differed (5).

A basic understanding of the principles of direct current helps in a better understanding of the implications of HVGS. The active electrode(s), either positive or negative, is/are the one(s) which produces the effects desired. The inactive electrode (often known as the "dispersive" electrode) is the other one. The active electrode should always be smaller in order to concentrate the current locally at the injury site, and intensify the action. Intensity depends upon the patient's tolerance and the size of the electrodes. The most important factor in galvanic current is POLARITY. Each polarity has distinctive attributes and is consequently productive of certain therapeutic effects. Galvanic current in its passage through a liquid decomposes it; this decomposition being termed electrophoresis. The liquid decomposed is the electrolyte with its parts being ions. Current is passed through the positive (anode) and the negative (cathode) (4).

To determine which polarity to use for acute versus chronic injuries, many principles are followed. In treating acute pain, the positive pole is used over the site of the pain. The positive pole is sedative and acid in reaction. Hydrogen is electro-positive, thus is repelled from the positive pole and collected at the negative pole.

Where there is pain, there is always an alkaline reaction (4). By utilizing the positive pole, the alkalinity is driven toward the negative pole (4). The settings should provide a high frequency (approximately 100 pps) for 15-20 minutes at a positive setting (2). Rich-Mar agrees that in treating acute pain, a moderate-high frequency should be used at a low intensity so as not to allow muscle contraction. Low intensities generally are most soothing for acute pain (6). Another possibility is using the probe, rather than the electrode pads, which could be applied directly to the injury site (1).

In treating chronic conditions where inflammation has been prolonged sufficiently to cause distinct organic tissue changes, the negative pole is most effective because of its liquefying and vasodilative properties (4). A 15-20 minute duration is most effective at a relatively low frequency to increase blood flow and muscle action (2). Eighty-eight percent of surveyed athletic trainers use acute or chronic as a basis for determining the polarity of the treatment.

Swelling and edema, as non-acute responses, are factors that commonly go hand-in-hand with athletic injuries. Thirty-five percent of the surveyed trainers use these responses as bases for utilizing a low frequency (pulsing) current while 30% use a high frequency (continuous) current. At any rate, it seems that regardless of frequency, a low intensity should be utilized. According to the EGS Model 100-2 instruction pamphlet, a negative polarity might be used for 15-20 minutes, at an intensity that the patient can tolerate, in reduction of edema (3).

But what about reduction of effusion and swelling caused by acute trauma? Twenty-nine percent of those surveyed use these acute responses as bases for altering the polarity of the treatment. Many feel that a positive polarity should be used to stop hemorrhage and contract the tissue (4,5). A negative polarity, however, might also have therapeutic effects (3).

In treating a large area, such as the low back, 50% of surveyed trainers incorporate the four-pad system. The philosophy here is that a larger area can be covered at a time. No literature was found on this, but it seems to be effective according to the survey results (5).

To increase blood flow, possible indirect effects are used. The pumping action of the muscles seems to be the most logical in regard to high voltage pulsed direct current. Effective venous return requires strong intermittent contraction, an effect that HVGS can create (1). According to the EGS Model 100-2 instruction pamphlet, a negative polarity should be used for 15-20 minutes at a very low frequency to cause the pumping effect.

To relieve muscle spasms, many feel that HVGS is very effective. According to survey results, 16% use the continuous high frequency current to relieve spasm. Fourteen percent feel that the current alternating in the pads leads to spasm reduction. According to Alon (1), "the current *should* cause intermittent tetanic contraction which in turn should cause muscle relaxation once the treatment is completed." To relieve spasm in the extremities, a negative polarity should be used at a frequency of 20-120 pps for 20 minutes; for back and neck spasms, negative should be used for 15 minutes and positive for 5 minutes, both at 20-120 pps (3).

According to the survey (5), it is evident that HVGS is often used in treating acute contusions. Forty-seven percent of the trainers surveyed replied "yes", but no specifications were given on how this treatment was carried out. One might assume that the same protocol is followed as for acute injuries of other types.

Eighty-two percent of the trainers surveyed use some type of cold immersion concurrently with HVGS. Forty-five percent use a reciprocating technique when treating large areas; conversely, 33% refrain from using the reciprocating technique at all. Fifty-three percent have an HVGS unit that combines ultrasound with galvanic current. All but one of the trainers surveyed use two electrode pads and one larger dispersive pad. This one trainer often places one pad as the electrode and the other as the dispersive, thus leaving the remaining electrode outlet without an electrode (this can only be done on certain HVGS products). In response to "what protocols *do* trainers follow?", 65% responded that they followed the recommendations of the manufacturer of their product (5).

Summary

HVGS is used very commonly by Certified Athletic Trainers and Physical Therapists in treating injuries incurred in athletic competition. It was found that galvanic current is used to treat acute and chronic conditions, joint effusion, pain caused by injury, swelling, edema, muscle spasms, contusions, and other injuries. HVGS is accompanied by cold immersion in some instances. In other situations, a four-pad system is used to cover a large area; in most instances, trainers tend to use two electrode pads plus a dispersive pad. Another method uses the probe to concentrate the current at the injury site.

Conclusions

Within the methods used and the availability of literature on this topic, the following conclusions can be justified. However, these guidelines have not been field tested by the author and are merely a compilation of information from various sources.

1) There is very little, if any, "state of the art" research published that gives definitive uses for high voltage galvanic stimulation.

2) A protocol for the most effective use of HVGS can, in fact, by synthesized from the knowledge we possess on the subject today.

3) Within the scope of the research done, these guidelines are believed to be the most effective methods for the use of HVGS:

In treating acute pain, the positive polarity is used over the site of the pain at a high frequency (approximately 100 pps) for 15-20 minutes. A low intensity should be used. The probe attachment may be used with these same parameters in mind when treating a very local area.

Chronic conditions seem to be treated most effectively with the negative polarity at a low frequency for 15-20 minutes. The intensity should be set to the patient's tolerance.

In the treatment of swelling or edema, a low frequency (pulsing) current or a high frequency (continuous) current may be used with little difference. Often, the pumping action of the low frequency current enhances the treatment's edema-removing abilities. A low intensity should be used at all times for swelling. If swelling or joint effusion is due to acute trauma, the same guidelines should be followed as for other acute injuries, as outlined above. Likewise, if the swelling is a chronic problem with no apparent hemorrhaging, the guidelines for chronic injury treatment should be followed.

When treating a large area, one may incorporate the four-pad system. Also, the reciprocating pad method may enhance the effectiveness.

To increase blood flow, a negative polarity for 15-20

minutes at a low frequency may be the best setting to accomplish the "pumping effect" in the muscles.

To relieve muscle spasm, a negative polarity at 20-120 pps should be used for 20 minutes in treating extremities. For back and neck spasms, a negative setting should be used for 15 minutes and a positive setting for 5 minutes, both at 20-120 pps. Having the current alternating in the pads may also aid in the effectiveness of the treatment.

By following the same guidelines as for acute injuries, HVGS can effectively reduce acute contusions and shorten the healing time from such injuries.

Two other modalities have synergistic qualities when used concurrently with HVGS. Cold immersion or cold whirlpools have been found to aid in edema reduction and acute pain treatment when accompanying HVGS; ultrasound, when used with HVGS, may, to some extent, increase blood flow (5).

Discussion

A study such as this was necessary to get a grasp on many conflicting philosophies. However, it was very difficult to draw any conclusions due to the "comparing apples and oranges" type data that was found. The recommendations of the manufacturers of HVGS products were used as a basis, then the data of the survey were contrasted to this basis.

Hopefully, a "state of the art" may be established with the help of this survey. The purpose was to bring together the philosophies of experienced athletic trainers, the recommendations of the manufacturers, and the most up-to-date literature on the topic. As illustrated in replies to the questionnaire, trainers have a desire to know how their peers carry out this type of therapy.

The predominant method in each facet of the study was presumed to be the "most effective" means, merely because it was advocated by the largest percentage of the representative group. This, however, does not discount the possibility of using another polarity, frequency, intensity, or duration than that recommended here. Also, many techniques may not have even been touched upon in this study.

If we can assume that this compilation of knowledge is the present "state of the art", hopefully, in the future we will be challenged to re-evaluate this and continually keep up with the knowledge of the time.

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An Examination of Health Counseling Practices of Athletic Trainers

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The athletic trainer's role as a counselor of health related topics is discussed. Fourteen specific health areas are examined. This study provides the athletic trainer with greater insight into counseling, an important adjunct to the trainer's other activities.

The athletic trainer is faced with a multitude of responsibilities. While the primary focus may center on prevention and rehabilitation of sports related injuries, the athletic trainer may also serve as the resident counselor and advisor on health related matters. An athletic trainer holds a position which is often equated with medical and health knowledge. The trainer is also a highly visible person due to his or her association with spectator sports at games, pep rallies, and so on. These factors make the athletic trainer significant to both athlete and non-athlete, and enhance the image of the trainer as a counselor of health related issues.

A great deal has been recently written on the subject of counseling in general (1, 2, 3, 4, 5, 8). Very little, however, has been written regarding the athletic trainer as counselor (6, 7). Consequently, this study was conducted to examine a number of factors regarding counseling practices, specifically, health oriented counseling practices of athletic trainers.

Methodology

The sample chosen for investigation in this study consisted of 310 active athletic trainers, from the State of Texas, who were members of the National Athletic Trainers Association. The participants represented Texas public school districts ranging in size from AAA (275 to 648 students) to AAAAA (1303 students or more). A survey instrument was mailed to each subject in the study. Each mailing consisted of a cover letter explaining the basic procedures of the study, the survey instrument itself, and a stamped self-addressed envelope. The survey instrument used with this study was the Revised Wylie Inventory (9). The back side of the instrument was used to gather demographic data and background information.

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Subjects were asked to indicate the size of their school, length of time working as a trainer, age, academic training, their perception of the importance of health related counseling, and the percentage of work time spent in counseling health related topics. The inventory itself examined fourteen health counseling topics which included alcohol problems, nutrition, injury therapy, drug use, mental health, death, venereal disease, injury prevention, weight control, suicide, child abuse, sexuality, smoking, and hygiene (Figure 1).

Subjects were asked to rank order these fourteen topic areas from the highest perceived need to the lowest, and to rank order the topics from most to least counseled. The subjects were also asked to indicate the approximate number of persons counseled in each area per year, the age group most often counseled, their assessment of college preparation in these areas, and their competency in counseling these topics. In addition, the subjects were asked if their college training adequately prepared them to counsel in these areas, if they had participated in any continuing education since their initial training, and if they would participate in seminar or workshop on the topic if it were made available.

Results - Discussion

Of the 310 surveys mailed there were 148 returned. This represented a response rate of 48%. As would be expected, the greatest proportion of returned questionnaires came from schools with the largest enrollments. Of the total questionnaires returned, 71.3% came from schools classified AAAAA (1301 students or more), 20.7% from schools classified AAAA (649 to 1302 students), and only 8.0% from schools classified AAA (275 to 648 students). No questionnaires were returned from schools of class AA (134 to 274 students) or class A (1 to 133 students).

Regarding the length of time working as a trainer, the average length of experience reported by the subjects was 10.68 years. The range spanned from one year to 38 years experience. The average age of the respondent was 33.5 years, with a range from 25 to 67 years of age. Of the total questionnaires returned, 90.3% were from males and 9.7% from females. Sixty-seven percent of the respondents held the Masters degree.

When the subjects were asked if they preceived counseling of health related topics to be an important aspect of their work as an athletic trainer, the reply was 89.8% yes, with 10.2% replying no. However, when asked what percentage of work time is spent in counseling health related topics, only 8% spent half their time or more, while 69% of the respondents spent 20% or less of their time in counseling health related topics. Even though most of the trainers indicated this type of counseling was an important aspect of their work, a relatively small number actually carried out a significant amount of health counseling.

Tables 1 through 9 summarize the data regarding the fourteen health counseling topics. Table 1 indicates the ranking of counseling areas from most to least counseled. Injury therapy and injury prevention topped this ranking, followed by nutrition and weight control. At the bottom of this list was death or bereavement counseling, child abuse and suicide. This was very much in agreement with the rank order of topics by number of persons counseled per year (Table 2). The top five and bottom three topics were identical for these rankings. The major difference between these two was that alcohol counseling was three ranks lower on Table 2 than on Table 1. This may indicate that alcohol counseling occurs frequently, but is directed toward a smaller group of students.

The ranking of counseling areas from most to least counseled (Table 1) also compares favorably with the rank order from perceived highest felt need to lowest (Table 7). All health counseling topics are within two

Table 1
Rank Order From Most To Least Counseled Areas According to Past Experience

1. Injury Therapy (rehabilitation)
2. Injury Prevention
3. Nutrition
4. Weight Loss/Gain
5. Hygiene/Grooming
6. Alcohol Problems
7. Drug Use or Abuse
8. Smoking
9. Mental or Emotional Health
10. Sex Education
11. Venereal Disease
12. Death or Bereavement Counseling
13. Child Abuse
14. Suicide

Table 2
Rank Order of Topics By Number of Persons Counseled Per Year

1. Injury Therapy (Rehabilitation)
2. Injury Prevention
3. Nutrition
4. Weight Loss/Gain
5. Hygiene/Grooming
6. Drug Use or Abuse
7. Smoking
8. Sex Education
9. Alcohol Problems
10. Mental or Emotional Health
11. Venereal Disease
12. Death or Bereavement Counseling
13. Child Abuse
14. Suicide

Table 3
Age Group Most Often Counseled in Each Area

Alcohol Problems	Juniors and Seniors
Nutrition	Sophomores and Freshmen
Injury Therapy (rehabilitation)	All of them
Drug Use or Abuse	Juniors only
Mental or Emotional Health	Sophomores only
Death or Bereavement Counseling	Freshmen only
Venereal Disease	Seniors only
Injury Prevention	All of them
Weight Loss/Gain	Sophomores and Juniors
Suicide	Freshmen and Seniors
Child Abuse	Freshmen only
Sex Education	Freshmen and Sophomores
Smoking	Freshmen and Sophomores
Hygiene/Grooming	Freshmen only

Table 4
Did Your College Training Prepare You To Counsel This Subject?

	YES %	NO %
Alcohol Problems	60.8	39.2
Nutrition	72.6	27.4
Injury Therapy (rehabilitation)	85.7	14.3
Drug Use or Abuse	53.6	46.4
Mental or Emotional Health	42.1	57.9
Death or Bereavement Counseling	12.2	87.8
Venereal Disease	72.8	27.2
Injury Prevention	87.6	12.4
Weight Loss/Gain	75.0	25.0
Suicide	19.1	80.9
Child Abuse	16.9	83.1
Sex Education	68.5	31.5
Smoking	76.3	23.7
Hygiene/Grooming	80.9	19.1

Table 5
How Adequate Do You Feel Counseling These Cases?

	Very Adequate %	Adequate %	Inadequate %	Very Inadequate %
Alcohol Problems	32.0	56.7	8.2	3.1
Nutrition	43.3	46.4	7.2	3.1
Injury Therapy (rehabilitation)	83.7	12.2	3.1	1.0
Drug Use or Abuse	22.4	55.1	20.6	1.9
Mental or Emotional Health	14.7	45.3	32.6	7.4
Death or Bereavement Counseling	9.9	22.0	37.4	30.8
Venereal Disease	26.6	58.5	11.7	3.2
Injury Prevention	85.7	10.2	1.8	2.3
Weight Loss/Gain	52.6	38.1	8.2	1.0
Suicide	4.4	30.8	36.3	28.6
Child Abuse	6.7	26.7	36.7	30.0
Sex Education	27.7	55.3	10.6	6.4
Smoking	45.8	44.8	8.3	1.0
Hygiene/Grooming	52.6	39.2	6.2	2.1

Table 6
Would You Recommend That Educational Programs Be Required In This Area During Academic Preparation?

	YES %	NO %
Alcohol Problems	92.8	7.2
Nutrition	94.2	5.8
Injury Therapy (rehabilitation)	100.0	0.0
Drug Use or Abuse	96.9	3.1
Mental or Emotional Health	93.8	6.2
Death or Bereavement Counseling	67.7	32.3
Venereal Disease	93.8	6.3
Injury Prevention	100.0	0.0
Weight Loss/Gain	97.9	2.1
Suicide	72.0	28.0
Child Abuse	72.8	27.2
Sex Education	89.5	10.5
Smoking	92.7	7.3
Hygiene/Grooming	90.8	9.2

Table 7
Rank Order From Perceived Highest Felt Need To Lowest

1. Injury Therapy (Rehabilitation)
2. Injury Prevention
3. Nutrition
4. Alcohol Problems
5. Drug Use or Abuse
6. Weight Loss/Gain
7. Mental or Emotional Health
8. Sex Education
9. Smoking
10. Venereal Disease
11. Hygiene/Grooming
12. Suicide
13. Child Abuse
14. Death or Bereavement Counseling

Table 8
Have You Participated In Any Course Work Since Your Initial Training?

	YES %	NO %
Alcohol Problems	57.1	42.9
Nutrition	87.7	16.3
Injury Therapy (rehabilitation)	94.9	5.1
Drug Use or Abuse	71.4	28.6
Mental or Emotional Health	44.3	55.2
Death or Bereavement Counseling	16.7	83.3
Venereal Disease	44.8	55.2
Injury Prevention	96.9	3.1
Weight Loss/Gain	81.4	18.6
Suicide	21.1	78.9
Child Abuse	25.5	74.5
Sex Education	44.3	55.7
Smoking	56.3	43.8
Hygiene/Grooming	42.9	57.1

Table 9
Would You Participate in a Seminar-Workshop if Made Available?

	YES %	NO %
Alcohol Problems	72.3	27.7
Nutrition	89.2	10.8
Injury Therapy (rehabilitation)	94.8	5.2
Drug Use or Abuse	83.0	17.0
Mental or Emotional Health	79.1	20.9
Death or Bereavement Counseling	59.3	40.7
Venereal Disease	73.3	26.7
Injury Prevention	95.8	4.2
Weight Loss/Gain	87.0	13.0
Suicide	67.4	32.6
Child Abuse	68.9	31.1
Sex Education	74.7	25.3
Smoking	70.7	29.3
Hygiene/Grooming	65.6	34.4

ranks of each other with the exception of hygiene/grooming. This topic was ranked number 5 on Table 1 but fell to number 11 on Table 7. This indicates that while the athletic trainers do not perceive hygiene/grooming to be of particular importance, there is a considerable amount of this counseling being done. This may reflect an interest which students have for this topic, and the athletic trainers' response to this demand.

Table 3 indicates the age group most often counseled in each area. Injury therapy and injury prevention showed an even distribution among the four grade levels while the other twelve counseling topics were more graphically distributed between freshmen, sophomores, juniors, and seniors.

Regarding adequacy of counseling in the various areas (Table 5), trainers indicated that they felt adequate (50% or more marking adequate or very adequate) in all the counseling areas with the exception of death or bereavement counseling, suicide, and child abuse. This correlates with the data presented in Table 4 which indicates if college training prepared the individuals to counsel in these various health areas. Fifty percent or more of the respondents indicated that their college training did prepare them to counsel in all the areas listed with the exception of death or bereavement counseling, suicide, child abuse, and mental health.

When asked if educational programs in these areas should be required during academic preparation (Table 6), there was a strong positive response. Subjects response ranged from 100% agreement for the topics of injury therapy and injury prevention to 67.7% agreement for death or bereavement counseling.

Subjects were asked if they had participated in any course work in the health counseling areas listed since their initial academic training (Table 8). The most positive responses were from injury prevention, injury therapy, and nutrition, while the least positive responses were from death or bereavement counseling, suicide and child abuse. Related to this, the subjects were asked if they would participate in continuing education in these areas if made available (Table 9). There was, overall, a very positive response to this question. The responses ranged from 95.8% positive reply for injury prevention to a 59.3% positive reply for death or bereavement counseling. This may represent a significant factor related to course offerings in colleges, universities, and continuing education programs.

Figure 1

INSTRUCTIONS: Please respond to the following questions by applying each to the listed types of counseling cases.

Types of counseling cases.	Rank order from most to least counselled areas according to your past experience 1=most counseled 14=least counseled	Circle the approx. number of persons counseled in this area per year > = greater than	Circle the age group most often counseled in each area	Did your college training adequately prepare you to counsel in this area?	How adequate do you feel counseling these types of cases? 1=very adequate 2=adequate 3=inadequate 4=very inadequate	Would you recommend that educational programs be required in this area during academic preparation?	Rank order these cases from your perceived highest felt need to the lowest. 1=highest need 14=lowest need	Have you participated in any course work (i.e. seminars, workshops, college classes, etc.) in the areas listed since your initial training?	Would you participate in a seminar, workshop, or short course focusing on the counseling areas listed if they were made available?
Alcohol Problems		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Nutrition		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Injury Therapy (rehabilitation)		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Drug Use or Abuse		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Mental or Emotional Health		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Death or Bereavement Counseling		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Venereal Disease		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Injury Prevention		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Weight Loss/Gain		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Suicide		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Child Abuse		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Sex Education		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Smoking		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Hygiene/Grooming		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No
Other		1-5 6-10 11-20 21-30 31-40 > 40	Freshman Soph Jr. Sr.	Yes No	1 2 3 4	Yes No		Yes No	Yes No

Summary - Conclusion

The health counseling practices of athletic trainers were investigated in this study. While counseling is certainly not the principal function of the athletic trainer, counseling of health related topics is perceived by the athletic trainer as an important aspect of the job. Athletic trainers feel that the ability to counsel effectively in health related areas is important, and demonstrate their personal convictions by participating in continuing education in selected health topic areas. Training institutions need to recognize this aspect of the athletic trainer and respond with appropriate curricular offerings. In today's social climate, with more pressure and stress than ever before being placed on the high school/junior high student, the athletic trainer may have to assume additional responsibilities regarding guidance and counseling. Trainers seem to realize that the pain or problems which student athletes present to them may not always be in the body.

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Inflammation in Connective Tissue: Etiology and Management

Gary B. Wilkerson, ATC

Inflammation represents the reaction of the body to cell injury or death. Its symptoms include variable degrees of redness, heat, swelling, and pain. The development of the inflammatory response may be sudden or gradual. Traumatic disruption of the cell membrane is associated with sudden liberation of preformed inflammatory substances that have a profound effect on capillary permeability. Repetitive mechanical stress is associated with the activation of enzymes that initiate a chain of chemical reactions that ultimately results in breakdown of the cell membrane. Prostaglandins are hormone-like substances that are synthesized from a product of cell membrane breakdown. Certain classes of prostaglandins are responsible for the perpetuation of the inflammatory response. They are believed to be largely responsible for the production of pain, through stimulation of chemosensitive nerve endings. Various drugs inhibit prostaglandin synthesis through deactivation of certain enzymes. The proper administration of therapeutic heat and cold can have a significant effect on the resolution of inflammation. Improper use of heat and cold can cause inflammatory symptoms to worsen.

The term inflammation comes from the Latin word "inflammare", which means "to flame within". The symptoms associated with inflammation include localized redness, heat, swelling, and pain. Within itself, inflammation is not a pathologic condition, but represents the sum total of the body tissue reaction to cell injury or death (5, 23, 28). Connective tissue often suffers from the development of inflammation, since it may cause extensive degeneration (2, 12, 22).

Inflammation may range from a transient, localized response to a complex, sustained response involving the entire body. An acute inflammatory reaction lasts for only a few days to a few weeks. Chronic inflammation may last for many months or even years. What starts out as acute inflammation may become chronic, or inflammation may develop gradually from microtrauma, (i.e. overuse syndrome) in which case it is chronic from the beginning. Both types are associated with pain. Heat, redness, and swelling are most prominent in acute inflammation. Thickening of synovial membranes and development of adhesions between tissues that are not normally joined are common features of chronic inflammation (5).

Initiation of the Inflammatory Response

The inflammatory response is initiated by numerous substances that are released or synthesized from various cell or plasma sources. Histamine and serotonin are potent substances that are continued within the lysosomes of mast cells, granular leukocytes, and platelets. These two substances play a major role in the early stages of the inflammatory response, but are rapidly converted to inactive derivatives (2). Bradykinin is another potent inflammatory substance that is synthesized in injured tissues from constituents that originate from plasma and plasma proteins (i.e. globulins) (12).

The release of pre-formed inflammatory substances from cells may be sudden or gradual. Cytotoxic release of the substances is associated with rupture of a cell's plasma membrane, which causes cell death and allows cell contents to leak out into the tissue spaces. Non-cytotoxic release of the substances may occur, but the exact mechanisms of what happens between stimulus and secretion are not clearly understood (2). Changes in cell membranes are known to occur during the development of inflammation, and they may trigger the process through activation of the enzyme phosphatidylserine decarboxylase. This enzyme initiates a chain of reactions that result in the generation of phosphatidyl choline. Increased membrane permeability to calcium ions activates the enzyme phospholipase A_2, which promotes the further metabolism of phosphatidyl choline to form lysophosphatidyl choline and arachidonic acid. The entry of additional calcium ions into the cell activates enzymes that promote movement of lysosome granules to the cell membrane where they fuse with it and then disgorge their contents (i.e. histamine and serotonin) (4) (Figure 1).

The action of histamine, serotonin, and bradykinin on capillaries causes local vasodilatation and increased permeability. When the capillaries become dilated, they contain more blood than normal, which causes the tissue to feel warmer and appear redder (4). Increased metabolism in an inflamed area also elevates local tissue temperature (25). The inflammatory substances increase permeability by causing endothelial cells of the capillary wall to contract, thus creating gaps between adjacent cells. These gaps allow the leakage of plasma and blood solutes (plasma proteins, platelets, leukocytes) which pass through the capillary wall and into surrounding tissue spaces (2, 12). Proliferation of leukocytes (primarily neutrophils and monocytes), occurs as they are drawn toward the injury site by substances released from damaged cells. The function of the leukocytes is to ingest and digest necrotic tissue debris through the process of phagocytosis.

Also released from damaged tissue cells is a substance called necrosin, which causes additional tissue death (12, 13, 26). Heparin (released from mast cells and

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basophils) temporarily prevents coagulation of the excess tissue fluid and blood components (1).

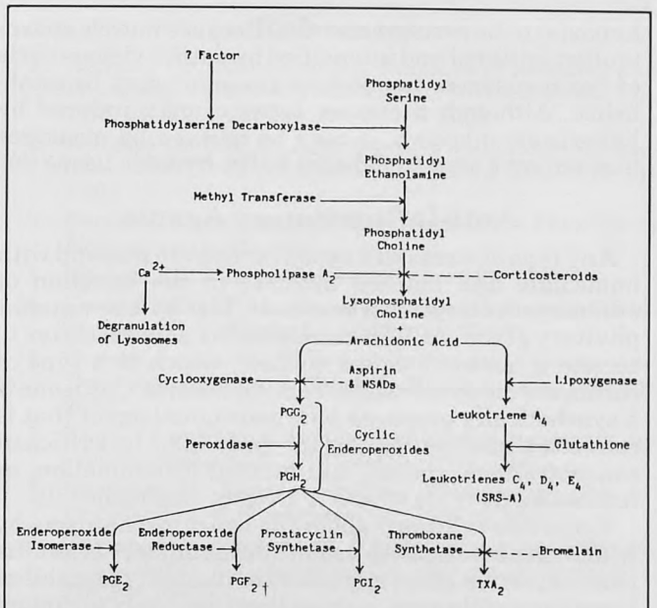
In addition to the substances active in the early stages of the inflammatory response, there are two additional groups of very potent substances that appear in the more advanced stages (2). These two groups, prostaglandins (PGs) and leukotrienes, have a common origin. Arachidonic acid is a product of the breakdown of phospholipids from the cell membrane caused by the activation of the enzyme phopholipase. PGs and leukotrienes are both synthesized by reactions that involve the oxygenation of arachidonic acid. Arachidonic acid is converted into PGs by the action of the enzyme cyclooxygenase and is converted into leukotrienes by the action of the enzyme lipoxygenase. A combination of three classes of leukotrienes constitutes the substance referred to as slow-reacting substance of anaphylaxis (SRS-A). Its primary effect in the inflammatory response is related to alteration of capillary permeability (4, 24).

Prostaglandins (PGs) are among the most potent of all known biological substances, producing marked effects on a wide variety of physiological processes in extremely small doses (21). PGs are hormone-like compounds that do not meet the strict definition of a hormone because they are formed in almost all tissues, and they act only in localized areas, rather than circulating to distant sites of action (1, 24).

Several different classes of PGs have diverse, and in many cases, opposite effects. Local control of inflammation appears to result from the preferential biosynthesis of one or more specific classes of PGs. There is strong evidence that PGs play a major role in perpetuation of the inflammatory response. "Pro-inflammatory" PGs are believed to synergize the effects of the other inflammatory substances, rather than having a different effect of their own (12). There is also evidence that certain other classes of PGs act as inhibitors of the inflammatory response (1, 21, 24, 27). It is clear that PGs play a complex central role in inflammation and they appear to be capable of both perpetuation and inhibition of the inflammatory response, depending on the specific classes of PGs that predominate.

The two main sets of stable PGs are the E and F series (PGE and PGF), each of which has three members. Subscript numerals 1, 2, and 3 denote the number of carbon-to-carbon double bonds associated with the molecular structure of a specific PG class. The subscripts alpha and beta after the numerical subscripts in the F series represent yet another subdivision to further differentiate specific characteristics of molecular structure. PGs with one or three carbon-to-carbon double bonds are synthesized from fatty acids other than arachidonic acid. Because arachidonic acid is abundant in tissues, PGE_2 $PGF_2\dagger$ are the two most common of the primary PGs (24).

Biosynthesis of the PGs is accomplished by a multienzyme complex called PG synthetase. One component, cyclooxygenase, acts as a catalyst to combine oxygen with arachidonic acid to produce unstable intermediate substances, referred to as cyclic PG enderoperoxides (PGG_2 and PGH_2). PGG_2 is converted to PGH_2 by the action of the enzyme peroxidase. Depending on the predominating type of enderoperioxide enzymes present in a particular tissue, PGH_2 is converted to any of the following: 1) the primary PGs (PGE_2 or $PGF_2\dagger$), 2) prostacylin (PGI_2), or 3)thromboxane (TXA_2). (PGI_2) and TXA_2 are very unstable, but are much more potent in their biological activities than are the more stable primary PGs. Their high activity and short half-lives elicit a marked but transient biological response. It has recently been recognized that the actions of PGI_2 and



Inflammatory Reaction of Body Tissues
Figure 1

TXA_2 may be responsible for many of the effects previously ascribed to PGs of the E and F series (24).

Because of the many and varied physiological responses elicited by each of the different classes of PGs, it is difficult to classify them according to actions. In a general sense, PGE_1 and PGI_2 can be classified and anti-inflammatory PGs, with PGE_2, $PGF_2\dagger$, TXA_2 classified as pro-inflammatory PGs, since the overall effects of these two groups are basically opposite to one another with regard to perpetuation of the inflammatory response.

Pain

The most distressing characteristic of the inflammatory response is the perception of pain. Pain receptors are free nerve endings that are widespread in the superficial layers of the skin, the periosteum of bone, and within joints. Mechanosensitive pain receptors are excited almost entirely by mechanical stress or damage to the tissues. Chemosensitive pain receptors are sensitive to various chemical substances, including bradykinin, serotonin, histamine, and PGs. Most pain receptors are sensitive to more than one type of stimulus (9).

Inflammatory substances may cause extreme stimulation of nerve fibers without necessarily damaging them. The threshold for excitation of nerve fibers becomes progressively lower as the pain stimulus continues, with the receptors becoming progressively more sensitive. Pro-inflammatory PGs are believed to sensitize pain receptors, causing a state of hyperalgesia. In this state, pain is elicited by mechanical and chemical stimuli that are normally not painful (2, 9, 12).

Accumulation of edema may cause pain through the development of pressure on mechanosensitive receptors (8, 14). Muscle spasm has a similar direct effect on stimulation of mechanosensitive receptors and also has an indirect effect on stimulation of chemosensitive receptors. Muscle spasm causes diminished blood flow (i.e. ischemia) by compressing blood vessels and also increases the oxygen demands of muscle tissue, thus causing the relative degree of oxygen deficiency (i.e.

hypoxia) to be even greater (28). Because muscle spasm is often initiated and intensified by pain, a vicious cycle of "pain-spasm-ischemia-hypoxia-pain" may be established. Although the exact cause of pain induced by hypoxia is unknown, it may be relieved by measures that improve oxygen delivery to the hypoxic tissue (9).

Anti-Inflammatory Agents

Any type of stress will cause the body to respond with immediate and marked increase in the secretion of adrenocorticotropic hormone (ACTH) by the anterior pituitary gland. ACTH stimulates the adrenal cortex to secrete a hormone called cortisol, which is a type of corticosteroid synthesized from cholesterol. Cortisone is a synthetically prepared pharmaceutical agent that is converted into cortisol by the body (28). In sufficient concentrations, cortisol can prevent inflammation, or reverse many of its effects if already established (9).

Very little is known about the exact mechanisms by which cortisol achieves its anti-inflammatory effect. Its most important effect appears to be its ability to stabilize lysosome membranes, making them less likely to rupture and release inflammatory substances. It is suggested that cortisol inhibits the biosynthesis of PGs, at least in part, by inhibition of the enzyme phospholipase (24). Other effects attributed to cortisol may be related to decreased PG synthesis. These include: 1) a reduced degree of capillary vasodilatation, 2) decreased capillary permeability, 3) reduced proliferation of leukocytes, and 4) inhibition of the ability of leukocytes to digest phagocytosed substances (which inhibits further release of inflammatory substances) (9).

A major problem associated with the use of cortisone is its effect on the structural protein of collagen fibers. Corticosteroids certainly inhibit collagen synthesis. This effect, added to that of the proteolytic enzyme collagenase, causes collagen breakdown to exceed synthesis. Cortisol also decreases synthesis of mucopolysaccharides that comprise the ground substance of connective tissue, further reducing the tensile strength of the damaged tissue (2, 6, 22).

Unlike corticosteriods, non-steroidal anti-inflammatory drugs (NSADs) do not cause any significant changes in collagen structure. They may inhibit synthesis of mucopolysaccharides to some degree. Like cortisone, NSADs appear to stabilize lysosome membranes and inhibit migration of leukocytes into damaged tissue. They counteract the effects of histamine and serotonin and may inhibit kinin-forming enzymes. The most commonly used NSADs include: 1) acetylsalicylic acid (i.e. aspirin), 2) ibuprofen (i.e. Motrin, Rufen, Advil, Nuprin), 3) naproxen (i.e. Naprosyn), 4) indomethacin (i.e. Indocin), 5) piroxican (i.e. Feldene), 6) sulindac (i.e. Clinori), 7) fenoprofen calcium (i.e. Nalfon), 8) tolmetin sodium (i.e. Tolectin), 9) meclofenamate sodium (i.e. Meclomen) and 10) phenylbutazone (i.e. Butazolidin) (2, 16).

The primary mode of action of NSADs is the inhibition of PG synthesis, which may explain all other effects (2, 4, 12, 24, 27). However, inflammation is a complex process that is sustained by a number of only partly understood mechanisms. The possibility certainly exists that they have more than one mode of action. NSADs inhibit PG synthesis by de-activation of cyclooxygenase. The side effects of NSADs may also be explained on the basis of PG mechanisms. The enzyme thromboxane synthetase in platelets is particularly sensitive to inhibition of NSADs. A single aspirin tablet (325 mg.) inhibits the production of TXA_2 by about 90 percent. This effect impairs platelet aggregation and prolongs bleeding time. This is a long-lasting effect (greater than 1 week) since the inhibition is overcome only as new platelets enter the circulation. Although platelet aggregation is inhibited, clotting can still occur by other mechanisms, even in the presence of high doses of NSADs (24). Development of stomach irritation and bleeding may be caused by inhibition of PGs that have a direct anti-secretory effect on stomach acid (2).

Because of the action of NSADs on the enzyme cyclooxygenase, the synthesis of all classes of PGs is inhibited. It has been suggested that the protein-splitting enzyme bromelain selectively inhibits the synthesis of pro-inflammatory PGs (TXA_2), without affecting the synthesis of anti-inflammatory PGs (PGI_2). The theorized mechanism of action of bromelain is an indirect inhibition of thromboxane synthetase through its effect on fibrinogen. It is believed that bromelain acts as a substitute for inhibited plasmin in damaged tissues to break down fibrinogen, which produces active peptides that play a role in anti-inflammatory PG synthesis (29). As of yet, the use of bromelain based pharmaceuticals is not widespread and has not received much attention.

Cryotherapy and Thermotherapy

Cryotherapy is clearly indicated for all acute and certain chronic conditions. Tissue cooling has a direct inhibitory effect on inflammation by slowing the chemical reactions in cells and by inhibiting enzyme activity, thereby reducing release of inflammatory substances (6, 7, 10, 11, 15, 16, 18, 25). Cold application produces an anesthetic effect by raising the threshold of nerve endings and by inhibiting the conductivity of nerve fibers, which slows transmission of pain impulses (10, 15, 16, 18, 20, 30). Cold-induced anesthesia, along the decreased muscle spindle activity, reduces muscle spasticity (15, 18). Even very short-term interruption of the pain stimulus may break the pain-spasm-pain cycle and provide relief for a prolonged period (14, 15, 20).

The use of cold is widely advocated to minimize post-traumatic swelling. It is generally accepted that such an effect is achieved through the diminished blood flow caused by cold-induced vasoconstriction (10, 11, 15, 16, 18, 19, 20, 25). Although there exists a large body of unscientific support for this belief, a review of the literature reveals very little quantitative documentation of such an effect. Theoretically, vasoconstriction and inhibition of mediator release should prevent swelling. However, experimentally produced inflammatory reactions in animals that were treated with cold have actually demonstrated more swelling than untreated controls (7, 17, 18). A possible explanation for such an effect would be capillary damage caused by cold-induced ischemia. Blood flow into damaged vessels after cooling is discontinued would cause swelling to occur. This hypothesis is supported by evidence that swelling will take place even in uninjured tissue after exposure to cold (7). More research is needed to clarify the relationship between cold and swelling.

Although there is little evidence to indicate that cold reduced swelling, there is convincing evidence that cryotherapy reduces recovery time (10). One investigation concluded that use of cold did increase swelling, but microscopic examination of the damaged ligament revealed that the inflammatory reaction was inhibited (7). It has been suggested that the most beneficial effect of cryotherapy use is decreased tissue metabolism, rather than decreased circulation. Reduction of oxygen requirements allows cells to survive the hypoxic condition that exists after trauma until greater amounts of oxygen become available. Prevention of hypoxic damage

to tissue minimizes additional release of inflammatory substances beyond that caused directly by trauma (3, 14). The clearly positive effects of cold in the treatment of acute trauma certainly appear to outweigh any possible negative effects caused by increased swelling.

The relative benefit to be derived from the use of heat depends upon the prevailing conditions in the tissue to be treated. The rate of any chemical reaction is increased by an increase in tissue temperature (15). If used too early, heat enhances the activity of inflammatory substances, worsening the inflammatory reaction (11, 15, 16, 30). The resultant increase in metabolism greatly increases oxygen demands and may contribute to the development of hypoxia (14, 15). Increased swelling is a common manifestation of improper use of heat.

Thermotherapy is beneficial in the resolution of the late stages of inflammation. Increased metabolism associated with heat application promotes healing by speeding up the repair process. The body responds to elevated tissue temperature by increasing blood flow to the area to carry away heat and dissipate it throughout the body. Local vasodilitation occurs as the increased blood flow is directed toward the area of heat build-up. The increase in blood flow to the affected area meets the increased oxygen demands of the repair process and encourages the breakdown and removal of dead tissue debris (14, 15, 30). Relaxation of muscle tension associated with use of heat is believed to be primarily due to increased delivery of oxygen, which interrupts the pain-spasm-ischemia-hypoxia-pain cycle (15).

Summary

Trauma or prolonged and excessive exposure to high stress loads leads to the development of inflammation, which restricts activity and may cause extensive degeneration of connective tissue. The inflammatory response is initiated by numerous substances that are released or synthesized from various cell and plasma sources. The biosynthesis of hormone-like compounds, called prostaglandins, plays a central role in the perpetuation of the inflammatory tissue response.

Different groups of prostaglandins can be classified as pro-inflammatory or anti-inflammatory, depending on their physiological effects. Pro-inflammatory prostaglandins are largely responsible for the perception of pain associated with inflammation. Once established, pain is often responsible for the development of muscle spasticity, which causes more pain, thereby establishing a pain cycle.

The anti-inflammatory effect elicited by corticosteroids and non-steroidal anti-inflammatory drugs may be explained on the basis of their inhibitory effect on prostaglandin synthesis. The application of cold has also been found to have a direct inhibitory effect on inflammation by slowing cellular metabolism. However, the widely accepted belief that cold reduces swelling has been called into question by recent research findings. The application of heat during the acute phase of inflammation causes the inflammatory response to be intensified. Used during the late stages, heat may be beneficial in the resolution of inflammation.

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A Tip From the Field

Personalizing Your Training Room

Corrie J. Odom, MS, ATC
Mary Knudsen, BS

Personalizing your training room is simple, inexpensive, and flattering, plus a great way to boost morale among student trainers and athletes. Transforming a stoic, sterile-looking facility into a dynamic and spirited department can be achieved with minimal monetary investment and a little creativity.

At Slippery Rock State College (now Slippery Rock University) our primary facility which serves the entire student body, as well as athletes, was originally decorated in an array of assorted "institutional" pastels. The Athletic Training Club at Slippery Rock was very receptive to the idea of remodeling the training room and promptly designated a special committee to secure the necessary services and supplies. It was suggested that along with the change in color, from assorted pastels to our school colors of kelly green and white, that we design and display on accessible walls the school's logo (THE ROCK) and several characters associated with the profession of Athletic Training.

The head trainer agreed to the club proposal and requisitioned that our entire athletic training facility be freshly painted. As with most institutions, only a few interior colors are available so at our request the painters agreed to use an exterior green that was in stock to complement the white background. During the summer our department was painted with the school colors of green and white.

During one of the Athletic Training Club's first meetings of the new academic year it was decided to solicit ideas from several interested students for the "personalization" we desired for our training facility. Finally, the club members accepted a design submitted by an art student for display on a spacious wall above the whirlpools. An opaque projector was used to enlarge the exact design. Additionally, it was decided to display the logos of the NATA, SRSC, and the medical caduceus in a very conspicuous place directly above the supply counter and cabinets. These characters were drawn free-hand by the same art student who received a modest fee paid for by the Athletic Training Club for her design, drawing, and painting services. She was asked to sign her work, thereby, giving her recognition for her creativity and expertise.

The face-lift did wonders for the aesthetics and atmosphere within and among our department. Our training room looks fresh and alive and appears to have promoted better "housekeeping" habits among all personnel in an attempt to maintain our new look. Several compliments were received from our patients, faculty, and staff. We are proud to be an integral part of Slippery Rock University and want our college community, athletes, and visitors to know we are "THE ROCK." ⊕

Ms. Odom is Head Athletic Trainer at Kentucky State University, Frankfort, KY 40601. Ms. Knudsen is Physical Education instructor and coach at Manchester High School, Manchester, MI 48104.

National Office Notes

NEW PATCH

Certified, Student and Associate members will soon be mailed a free NATA emblem patch. The newly designed oval patch with the updated NATA logo replaces the old round patch. Additional patches will be available from the National Office at two for $5.00. See ANNOUNCEMENTS on page 339 for full information.

FROM THE CEU OFFICE

PLEASE NOTE: CEUs are not awarded for the performance of additional Athletic Training duties, such as working an All-Star game or other special event. We continue to get CEU requests for that type of activity even though the category was deleted in 1979.

You *must* submit your request for CEUs within thirty days of completing an activity. Be sure to include a brochure and/or program outline with your request whenever possible.

If you wish to receive an update on your CEU total, you *must* include a self-addressed stamped envelope. Your current CEU total is on your membership dues statement. We will also be mailing out an update in the Spring.

Do not delay submitting your request because you have not received a certificate of completion. We will accept receipts, letters, copies of cancelled checks or any item of that nature as verification of attendance.

CHANGES

In an effort to better utilize the various talents of the National Office staff, some departmental personnel changes have recently been made. These personnel shifts should help us serve the membership with optimum productivity. If you are uncertain of which staff member to ask for when you telephone, don't worry. You will immediately be put through to the correct office when you state the purpose of your call. Susan Williams, previously in the Certification Office, is no longer on staff. Sandra Gilbert has taken Susan's post.

DON'T MISS A JOURNAL!

Your membership expires on the last day of 1985. Please return your 1986 dues statement and payment promptly. Don't be one of the members who renew late and therefore miss the Spring issue. In order to be on the Spring mailing list, you must confirm your membership renewal by mid-February.

When membership has been reinstated *after* a member is deleted due to non-payment of dues, the issues published during the expiration period (usually the Spring issue) can not be sent. That member's name will be on the mailing list for the next Journal published *after* dues are paid. After reinstatement, back issues must be "special ordered" at a cost of $5.00 each ($7.00 to non-members). We would like to be able to send a missed Journal upon request, but the fact is they simply are not available. Each issue of the Journal has a specified number printed, and that number is based on the names on our mailing list *when the presses run.*

MORE COVER-UP

Some of you have told us you were expecting a plastic wrapper on the Fall Journal. For the present, plastic wrap is prohibitively expensive. We are working on several ideas with our printer and hope to continue to improve our protective wrapper.

GRAFFITTI

*Welcome Brian Barry, the Journal's new Current Literature editor and District 7 Representative.

*One of our advertisers is in the Pro-Football Hall of Fame. On the day Joe Namath was inducted into the Hall of Fame in Canton, Ohio, the Lenox Hill Derotation Brace, originally designed for Joe's right knee, was given a permanent home there too.

*For a free copy of the Fall '85 Sports Medicine Buyers Guide published by H.L. Moore Medical, call 1-800-243-2970.

*Visitors to the National Office thus far this fall were Tim Kirschner and Bill Nemeth, MD, of Southwest Texas State University in San Marcos. We are looking forward to meeting more of you when you are visiting near Greenville. Your National Office Staff will proudly show you around the home of your Association.

*Please, *please* remember to sign a Second Class Mail forwarding card at your post office when you change your address. Literally hundreds of each issue of the Journal are returned to us because this has not been done and the post office will not forward second class items otherwise.

*A "GRAND" event is planned for Las Vegas. Mark your calendars for June 9-12.

*Get out that needle and thread and put the new arm patch on during your *visible* season!

*The National Office Staff wishes all of you (or "you-all", as we say in Greenville!) a cheerful and safe Christmas season and a fantastically bright New Year!

b ⊕

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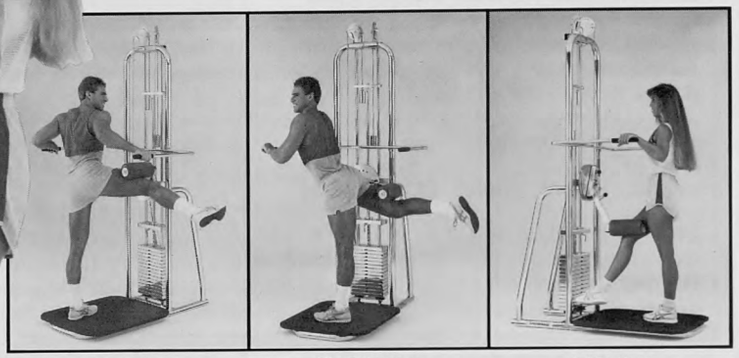

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Association Activities

David G. Yeo, DPE, ATC
Montgomery County
Community College
Blue Bell, PA 19422

The Southwest Athletic Trainers Association inducted seventeen Charter members into the S.W.A.T.A. Hall of Fame at their July convention in Waco, Texas. The Southwest Athletic Trainers Association was initiated in the spring of 1985 to recognize and honor the Athletic Trainers in District VI of the National Athletic Trainers Association whose past achievements, contributions to the athletic training profession, and service to S.W.A.T.A. have brought distinction to the Southwest Athletic Trainers Association as well as to themselves.

The Charter Members inducted were: Frank Medina, Delmar Brown, Elmer Brown, Wayne Rideout, Robert Gunn, Eddie Lane, Tom Wilson, Jr., Bobby Lane, Louis Grevelle, James Dodson, Larry Lohr, and Billy Pickard, Jr. Four members were inducted posthumously. They were Lilburn Dimmitt, Edward Wojecki, Bill Ferrell, and Bobby Brown.

Following this initial charter year, at least one, but no more than two, Athletic Trainers will be inducted into the Hall of Fame each year based on voting results.

* * *

The "Illinois Athletic Trainers Practice Act," Senate Bill #758, was signed into law on September 5, 1985. Jerry Bell, University of Illinois, and Roger Kalisiak, Hoffman Estates High School, spearheaded the legislative efforts.

* * *

Over 70 athletic trainers volunteered their services for the July '85 Prairie State Games in Champaign-Urbana. Jeff Sunderlin, Jeff Dooley, and Mike Petty coordinated the trainer coverage. Edward P. Grogg, MD, of the Carle Clinic Association, Urbana, was the Medical Director.

* * *

Stephen Black of Sports Therapy for Athletic Rehabilitation and Treatment, Springfield, MA, recently returned from a 14-day lecture tour in Japan. Steve was one of three guest presenters at a series of Isokinetic Seminars sponsored by Sakai, Japan's largest medical equipment distributor and Cybex, Division of Lumex. The tour made stops in Tokyo, Nagoya and Kyoto, Japan and addressed a large number of Japanese physicians, physical therapists and athletic trainers. The intent of the seminars was to help increase awareness of sports medicine and to share knowledge about the innovative arthroscopic surgery that is being performed in the United States.

* * *

Left to right: Dr. Gerald O'Connor, Mrs. Emma Linskey, Kerkor Kassabian"

At the American Orthopedic Society for Sports Medicine's annual meeting this past June in Nashville, Tennessee, the Distinguished Service Trainers Award was awarded posthumously to William F. X. Linskey. Mrs. Emma Linskey accepted the award for her husband from Dr. Gerald O'Connor and Kerkor Kassabian, District One Representative. The award represents a $2,000.00 contribution to the NATA's scholarship fund.

* * *

Governor James Thompson signs into law the Illinois Athletic Trainers Practice Act, which becomes effective January 1, 1986 making his state the 16th in the nation to regulate the practice of athletic training. Governor Thompson is flanked by the two men who led the fight for the bill, Roger Kalisiak (left), president of the Illinois Athletic Trainers Association, and Jerry Bell, chairman of the IATA legislative committee. Also attending the bill signing ceremony were (top row, from left) Brian Lichtenberger, State Rep. Terry R. Parke (R-49th), Jeffrey Dooley, Matt Guth, IATA treasurer Richard Carey and IATA secretary Hal Hilmer. Not shown are two other IATA members who were instrumental in the passage of the bill, Mike Barnish and Wayne Vaupel. (Photo by Matt Ferguson) ⊕

Calendar of Events

Jeff Fair, ATC, MS
Oklahoma State University
Stillwater, OK 74074

January

9-12 Gatorade Symposium on Future Directions in Exercise/Sport Research, Tempe, AZ. Contact James S. Skinner, Exercise and Sport Research Institute, Arizona State University, Tempe, AZ 85287.

11-12 National Operating Committee on Standards for Athletic Equipment, New Orleans, LA.

11-18 15th Annual Underwater Medicine Program, Bonaire, Netherlands Antilles. Contact Office of Continuing Medical Education, Temple University School of Medicine, 3400 N. Broad Street, Philadelphia, PA 19140.

12-15 NATA Districts 1 & 2 Meeting, Grossingers, NY. Contact District Secretary.

13-15 National Collegiate Athletic Association, New Orleans, LA.

19-24 Sports Medicine: 1986, Sacramento, CA. Contact Office of Continuing Medical Education, University of California - Davis School of Medicine, 2701 Stockton Blvd., Sacramento, CA 95817.

26-29 Winter Symposium on Baromedicine, Snowmass Village, CO. Contact Centennial Conferences, 1215 Mapleton Avenue, Boulder, CO 80302.

30-Feb. 1 Lake Placid Winter Sports Conference, Lake Placid, NY. Contact Lake Placid Winter Sports Conference, Mary Margaret Newsom, Education Services, U.S. Olympic Committee, 1750 E. Boulder Street, Colorado Springs 80909-5760.

February

1-2 A Comprehensive Approach to Throwing Injuries, Chicago, IL. Contact Chicagoland Orthopaedic Rehabilitation Services, 7600 West College, Palos Heights, IL 60463.

6-9 American Physical Therapy Association Combined Meeting, Anaheim, CA.

15-16 Comprehensive Care of the Athlete, Oklahoma City, OK. Contact Department of Physical Therapy, College of Allied Health, University of Oklahoma, Health Science Center, P.O. Box 26901, Oklahoma City, OK 73190.

20-25 American Academy of Orthopaedic Surgeons, New Orleans, LA.

March

8 17th Annual Medical Aspects of Sports Seminar, Newark, DE. Contact C. Roy Rylander, Athletic Department, University of Delaware, Newark, DE 19716.

8-15 Office Based Sports Medicine, Park City, UT. Contact Extended Programs in Medical Education, University of California - San Francisco, Room 569-U, San Francisco, CA 94143.

9-13 American College of Cardiology, Atlanta, GA.

14-16 NATA District 5 Meeting, Lincoln, NE. Contact District Secretary.

14-16 NATA District 7 Meeting, Greeley, CO. Contact District Secretary.

15-16 NATA District 10 Meeting, Portland, OR. Contact District Secretary.

15-18 National Association of Intercollegiate Athletics, Kansas City, KS.

19-22 The Great Lakes Athletic Trainer Association 1986 Winter Meeting and Sports Medicine Symposium, Grand Rapids, MI. Contact Lee Kermode, 2317 Gleneagle Drive, Kalamazoo, MI 49001.

20-22 NATA District 4 Meeting, Grand Rapids, MI. Contact District Secretary.

20-26 National Intramural - Recreational Sports Association, Las Vegas, NV.

ATHLETIC TRAINING will list events of interest to persons involved in sports medicine, providing items are received well in advance of publication. Please include the name and address of the person to contact for further information. Send items for the CALENDAR to Jeff Fair, Head Athletic Trainer, Athletic Department, Oklahoma State University, Stillwater, OK 74078. Refer to the following dates to ensure your event will appear in the desired issue. ⊕

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Spring	December 15
Summer	March 1
Fall	June 15
Winter	September 15

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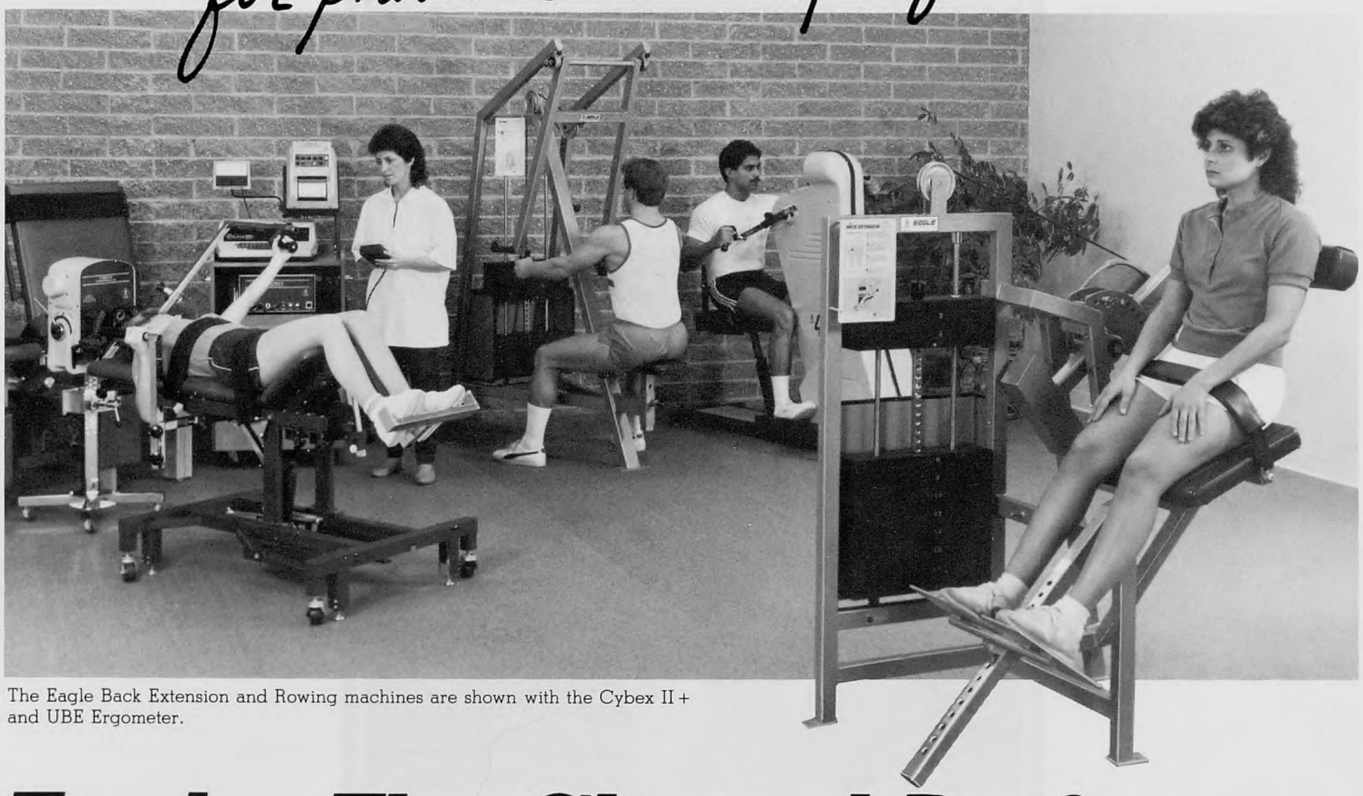

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In Memoriam

George B. MacKinnon
December 12, 1928 - April 22, 1984

After an extended illness, George MacKinnon passed away on Easter Sunday, 1984.

George was born in Torrington, Connecticut, and grew up in South Windsor, where he attended high school. As a pre-med major, he attended New York University, but interrupted his education to serve as a medic in the Air Force during the Korean War. Upon returning to the United States, George played semi-pro baseball in the North Carolina League before returning to New England and graduating from Springfield College.

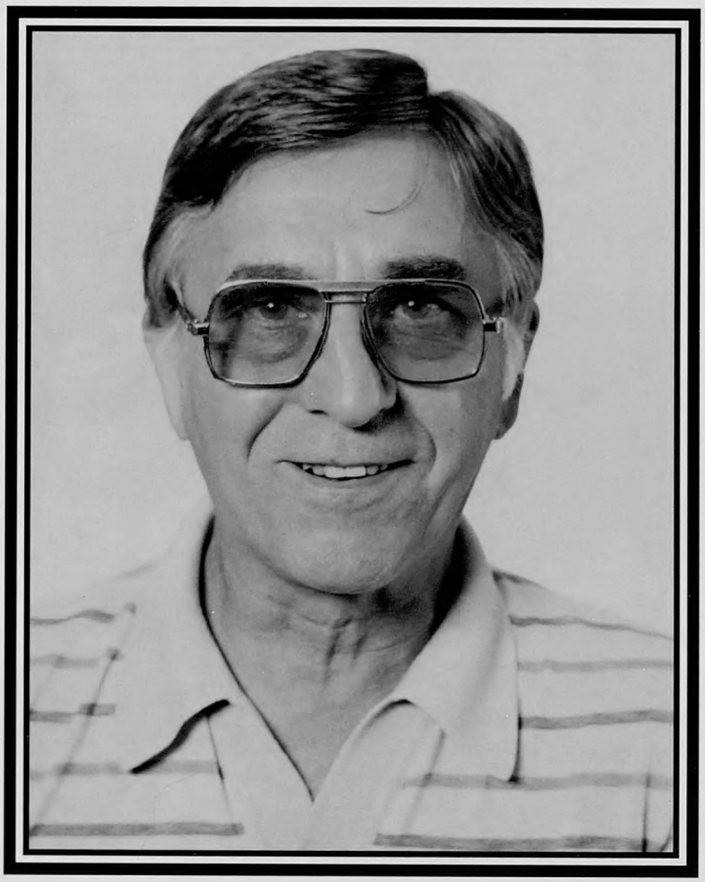
George worked at the University of Connecticut as a part-time trainer, then went to the American School for the Deaf in West Hartford, Connecticut in 1962. He started at A.S.D. as a trainer and printing instructor. He coached boys' varsity basketball for ten years and started the varsity programs in track, soccer and golf, in addition to being the first varsity golf and soccer coach. George assumed the position of Athletic Director at A.S.D. in 1965, and held that position for the next 19 years.

One of George's most cherished achievements was "Man of the Year" honors presented by the Connecticut High School Basketball Officials Association in 1982. He served as treasurer for the Eastern Schools for the Deaf Athletic Association and was also involved in coaching sports activities at his church.

George is survived by his wife Marge; their two daughters, Lynn and Nancy; and three grandchildren.

George will be remembered as serving the American School for the Deaf with dignity and dedication as athletic director, teacher, trainer, and friend.

In Memoriam



Dr. Roy W. Harvey
March 10, 1921 - May 21, 1985

NATA lost a very loyal friend when Dr. Roy Harvey passed away after a long illness in his home town of Hamilton, Ohio. He was a graduate of Hamilton High School and did undergraduate work at Wilmington College and Miami University in Ohio before graduating from Western Reserve College of Podiatric Medicine in Cleveland, Ohio.

Dr. Harvey was a World War II veteran before he began his practice in podiatric medicine. He served on the medical staff at McCullough-Hyde Hospital and was involved very closely with the Sports Medicine Program at Miami University, serving as team physician there for the past five years.

His interest in sports medicine began shortly after he opened his practice. For many years he donated his time as the unofficial athletic trainer for several local area high schools before NATA began certifying its members. He continued his NATA membership and became a certified member in 1970. It was very important to him to belong to our Association because he really wanted to know what challenges athletic trainers were facing. He supported us in many causes to the betterment of what we stand for.

Dr. Harvey was an Honorary member of the NATA, a member of the Academy of Ambulatory Foot Surgery, American College of Sports Medicine, American Academy of Podiatry, and American and Ohio Podiatric Association.

He is survived by his wife, Margaret, and daughters, Laura and Jennifer.

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Editorials

Eye Injuries Rampant in Competitive Sports

As competitive sports become increasingly popular, related eye injuries are on the rampage, particularly in racquet sports.

The National Society to Prevent Blindness (NSPB) warns that players of all ages face the risk of losing more than just the game — if they don't wear proper eye protection.

According to the Society, an epidemic exists of eye injuries from racquet sports. Recent studies have shown that injuries are increasing in direct proportion to the growing popularity of games such as racquetball, paddleball, volleyball and tennis.

The Consumer Product Safety Commission estimates that 4,400 eye injuries from racquet sports were seen in hospital emergency rooms in 1983 (latest figures available). This estimate excludes victims seen in medical clinics and physicians' offices.

"The tragedy of this is that 90 percent of these injuries could be prevented if players would give their eyes a sporting chance by wearing protective eyewear — something which has even been neglected by many professional athletes," said Edward H. Hall, Manager of NSPB's Eye Safety & Corporate Health Programs. "Many players do not wear protective eyewear; others mistakenly believe that their own streetwear glasses protect them."

Mr. Hall explained that players have failed to recognize the real eye injury potential they face.

But the Society stresses that the danger is real, and injuries are just as common among veteran players as among beginners. Medical authorities report that racquet and squash balls fit neatly into the bony orbit of the human skull surrounding each eye, which accounts for the increasing number of eye injuries among players of all ages. A racquet or squash ball traveling often at speeds in excess of 90 miles per hour severely injures the eye upon impact. Racquets also inflict eye injuries.

The National Society to Prevent Blindness has led the crusade to combat racquet sports eye injuries. Several other organizations have also taken strong stands on this issue.

The Board of Directors of the U.S. Squash Racquets Association in 1983 overwhelmingly voted to require eye protection in national championship tournaments. This was the first national racquet sports organization to mandate eye protection. Performance standards for racquet sports eye protectors were issued by the American Society for Testing Materials (ASTM) in April 1983.

Among the other organizations that recommend or require protective eyewear are the National Collegiate Athletic Association, National Intercollegiate Squash Racquets Association and the American Amateur

Racquetball Association. Recently the American Medical Association also endorsed ASTM's racquet sports eye protection standards, and many eye doctors now encourage their patients to wear proper eye protection.

NSPB hopes that the wearing of proper protective eyewear will become a habit among all players.

For advice on the types of protective eyewear that should be worn, write for a free copy of "What's Your Game?" to: National Society to Prevent Blindness, 79 Madison Avenue, New York, N.Y. 10016. Enclose a stamped, self-addressed, business-sized envelope with your request.

The National Society to Prevent Blindness, founded in 1908, is the oldest voluntary health agency nationally engaged in preventing blindness through a comprehensive program of community services, public and professional education and research.

Albuquerque Public Schools Set Standard For Student-Athletes' Protection

John LeGear

Building a health care program in every high school athletic department under the direction of an athletic trainer is considered practical, if not prudent, today. But many educators still maintain that it isn't affordable. And indeed, only four percent of the nation's 24,000 high schools employ a certified athletic trainer to anchor sports medicine programs.

However, in a state that ranks among the lowest in per capita income, the Albuquerque Public School (APS) system is setting the gold standard for health care in the secondary schools. And Albuquerque's citizens point to at least five deaths or catastrophic injuries that have been prevented since certified athletic trainers were required in every public high school six years ago.

In the fall of 1983, Michael Emarine, a freshman soccer player, was struck by lightning when he returned to the practice field to retrieve a pair of shoes. When the school's certified athletic trainer arrived moments later, Emarine showed no vital signs. The trainer applied CPR and revived him. Emarine returned to a normal life, and plays in his high school marching band today.

The incident occurred four years after dozens of physicians, educators and concerned citizens in this city of 400,000 banded together to implement an injury prevention and treatment program in all ten of Albuquerque's public high schools. If not for athletic trainer Don Mundell, school officials say, the soccer player would have become the 38th high school athlete to die or be permanently paralyzed in 1983.

"In this day and age, it is just foolish to operate a high school athletic program without a certified health care professional," said Gilbert Miranda, a recently retired educator who was the Director of Athletics for 13 years in Albuquerque's public schools.

Administrators at three of the city's four private high schools agree, and also participate in the city-wide effort to reduce the rate of prep sports injuries.

"We used to hold our breath every time there was an injury," said Miranda, one of the relentless architects of the mandatory health care program. "Now, no matter what happens, we sleep at night knowing we have done the best we can to protect students against injury. We have peace of mind."

Getting Certified Health Care Professionals

Two years ago, a running back collided head-on with a tackler and lost all feeling below the neck in a football game at a private high school in Albuquerque. Randy Perkins, the son of former Dallas Cowboys fullback Don Perkins, sustained the injury near the sideline, within arm's reach of 25-year-old Wayne Barger, one of the athletic trainers employed in Albuquerque's high schools.

Barger, who had treated a temporarily paralyzed student-athlete just one week earlier, immediately recognized the potential for permanent paralysis. Barger knew Perkins should not be moved without special equipment. Unaware of the seriousness of the injury, onlookers instructed the young trainer to move the athlete "just a few feet off the field" so the game could be resumed. Barger and one of the school system's volunteer physicians held their ground, and took the time needed to transport Perkins on a backboard with a neck brace.

After surgery to repair a fracture to the sixth and seventh vertabrae, doctors praised Barger, the physician and the health care program for sparing Perkins what might have been life as a quadriplegic. Perkins returned to athletics as a track and field competitor.

Despite conservative estimates of 800,000 time-loss injuries to high school student-athletes this year, hard-pressed educators in most states still contend that the cost of certified health care is too high.

But reform-minded educators, like those in New Mexico, Texas and California, are finding that athletic departments without full-time health care professionals are like literature classes without books.

"How can you put a price tag on students' lives?", asked Laura Threet, a former school board member and chairperson in 1979 when the APS instituted its mandatory health care program. "The $13,000 we spent at each high school to build and equip a training room facility is an insignificant capital outlay when compared with the $250 million budget for the entire school system."

Acting on A Health Care Plan

In 1978, Dr. Michael Nelson, an Albuquerque pediatrician who shared an avid interest in sports medicine with several colleagues, outlined the formula for reduction and prevention of athletic injuries. Dr. Nelson served as chairman of the group of physicians that volunteered to cover APS football, as well as girls and boys basketball, soccer and baseball games.

"We had a problem because coaches were being asked to provide health care for the student-athletes," Dr. Nelson said. "We had no liaison relationship, no common ground with the coaches.

"But most of us knew Tow Diehm, the head athletic trainer at the University of New Mexico," Dr. Nelson said. "After working with Tow, we offered a proposal to school superintendant Dr. Joseph Robitelle and the School Board."

In all ten public high schools, the plan was to hire a teacher who was certified by the National Athletic Trainers Association. The teacher-trainer would receive a full teacher's salary, plus a $1,500 stipend. The trainer would spend three periods in the classroom, instead of six, and serve as the hub of the sports medicine program. When a doctor was unavailable, it was a matter of school policy that the athletic trainer was the final

medical authority.

"School Board members had to take a good hard look at what was happening to kids in the athletic program," explained Threet. "After considering the physicians offer, we couldn't ask parents to let their kids participate in sports without offering the best available protection."

Adding the teacher-trainers' annual stipend to the price of equipment, supplies and retrofitting a training room the total start-up cost was about $15,000 at each school. Once past that obstacle, Gil Miranda said, the team of young, ambitious athletic training graduates averaged 70 hours a week to execute the health care plan.

Although less than one percent of the total APS budget is devoted to athletics—not even one-half the national average—the Board has never considered cutting back the APS sports medicine program, according to Bobby Santiago, a former All-State running back in New Mexico and a current school board member.

"We now have 53 physicians categorized according to their specialties who work directly with the athletic trainer at each school," Santiago said. "Their relationship is one of mutual respect. The effectiveness of the program on a one-to-ten scale rates ten," he said.

Tapping Community Resources

More than 6,000 Albuquerque public high school students participate in interscholastic athletics. Miranda, a principal for 18 years before taking the helm of the system-wide athletics program, notes that APS student-athletes' grade point average exceeds that of less active students.

Laura Threet said the success is the result of bringing the community's resources together. "This program is the sum of many parts," Threet said. "It began with physicians who cared, hard working athletic trainers, educators with a concern for the students' safety, supportive parents, and a school board that was willing to take risks, one that would dare to do something different."

Tow Diehm, a charter member of the National Athletic Trainers Association formed in 1950 and a 28-year fixture at the university, recalls letters of thanks he has received from grateful parents. He was reminded of the elderly man who suffered a heart attack at a baseball game and was revived by Jim Newberry, one of the first high school athletic trainers the city employed.

"Tow" Diehm gives much of the credit for a model health care and injury prevention program to Dr. Michael Nelson and fifty-two other Albuquerque physicians who currently volunteer their time for the benefit of the community.

Diehm also cited an APS trainer credited with saving a female cross-country runner who collapsed with a heart ailment during an event. Another one recognized the symptoms of a youngster who sustained a seriously damaged liver during a high school football game. All of them resumed normal lives.

"It's a team effort with a winning attitude," Threet said. "In six years we haven't heard one negative word about the sports medicine program. We're proud of it. It's here to stay, because once you've had an athletic trainer, it's extremely difficult to be without one."

Editors' Note: The following was an October Associated Press news release. Our Executive Director so effectively captured the spirit and intent of the NATA public relations program, it should be of interest to the membership as well as the general public.

Hal Bock

AP Sports Writer

NEW YORK (AP) — There are two battered football helmets sitting in Otho Davis' home, grim reminders of what can happen when a high school athlete plays this often violent game without the proper care or equipment.

The helmets came from two prep players who died after suffering head injuries. Davis, Head Athletic Trainer for the Philadelphia Eagles and Executive Director of the National Athletic Trainers Association, read about the cases and called the coaches, asking for the equipment.

"The webbing was rotted right through to the rivets," he said. "They were old, beat-up helmets. They obviously had been used too many times. A certified trainer would never allow kids in that equipment. I strongly believe they contributed to the deaths."

So why were they still being worn? Why weren't they discarded? In more sophisticated programs, a trainer or equipment manager would have tossed them out long before they had a chance to cause tragedy. In many prep and high school programs, however, there is no trainer or equipment manager. Those functions fall to the coach and medical care is limited to a first aid kit.

"Administrators say they don't have the funds to hire trainers," Davis said, "But they can always find money for a new blocking sled or new decals for the helmets or a new projector. Those things they can afford."

Davis told another story about a youngster whose death was heat-related. "This was a situation where the boy was overweight and shouldn't have been on the field to begin with. It was a case of poor screening, poor judgment, poor care and a boy is dead."

"You can't take the human body, put it in a heavy, long-sleeved jersey in early August heat and expect it to perform when it is not in condition. That's not a time to get into condition."

NATA estimates that 800,000 high school student-athletes will sustain time-loss injuries during the school year and 100,000 of those will be serious. Thirty-seven athletes will die or be permanently paralyzed. The numbers disturb Davis greatly.

"Most of the injuries are really re-injuries, cases where an individual was not taken care of properly in the first place," he said. "Too often there is pressure

continued on page 333

An Important Message from Gene Gieselmann

Athletic Trainer of the St. Louis Baseball Cardinals

Dear Fellow Trainer,

Of all the injuries that can befall an athlete, probably the most insidious—and potentially dangerous—is heat stress.

As head trainer of the St. Louis Cardinals baseball team, I'm keenly aware of this. Summer temperatures in St. Louis sometimes soar above 100°F often accompanied by extremely high humidity. Players having to perform day after day under such conditions are exceptionally vulnerable to dehydration, which can result in heat cramps, heat exhaustion, and in some cases, severe heat stroke. Even a partial loss of body fluids can impair an athlete's performance, cutting down on physical and mental efficiency.

Yet, while heat stress may be one of the most devastating sports injuries, fortunately, it's also one of the most preventable. It requires that athletes be well hydrated at all times, to keep their bodies cool and properly functioning—a responsibility that rests primarily with a team's trainer.

In the Cardinals organization, we've found that nothing accomplishes this task better than Instant *Gatorade*® Thirst Quencher. For years we've been providing ballplayers with unlimited quantities of *Gatorade* before, during and after games and practices. And, consequently, there has been a marked drop in the number of players who have suffered from heat injuries.

Interestingly, a lot of pros don't have to be told to drink *Gatorade*. They know through experience that it works—many having used it since they were kids.

As one who is responsible for keeping highly paid professionals in top performing condition, I heartily recommend the use of Instant *Gatorade* Thirst Quencher. And I'm not alone. Many other teams in all sports, at every level, have made Instant *Gatorade* an essential part of their athletic programs.

Gatorade: Number One Because It Works

It's no mere coincidence that Instant *Gatorade* Thirst Quencher is number one among athletic trainers all over America.

Instant *Gatorade* is scientifically formulated to quickly replace the fluids and electrolytes your players lose during rigorous games and workouts, while reducing waterlogging, cramping and bloating.

Instant *Gatorade* also contains glucose to provide energy reserves and enhance endurance. Its pleasant flavor encourages your athletes toward greater fluid consumption and rehydration. The Cardinal players really enjoy drinking it.

Gatorade: Better Than Water, Soft Drinks, Fruit Juices

While some trainers elect to use water, Instant *Gatorade* Thirst Quencher provides more benefits. Instant *Gatorade* is isotonic—balanced with the fluids in the body for rapid replacement of electrolytes. Water isn't. Instant *Gatorade* provides a readily available source of energy, has a pleasant taste—for greater consumption. Water doesn't.

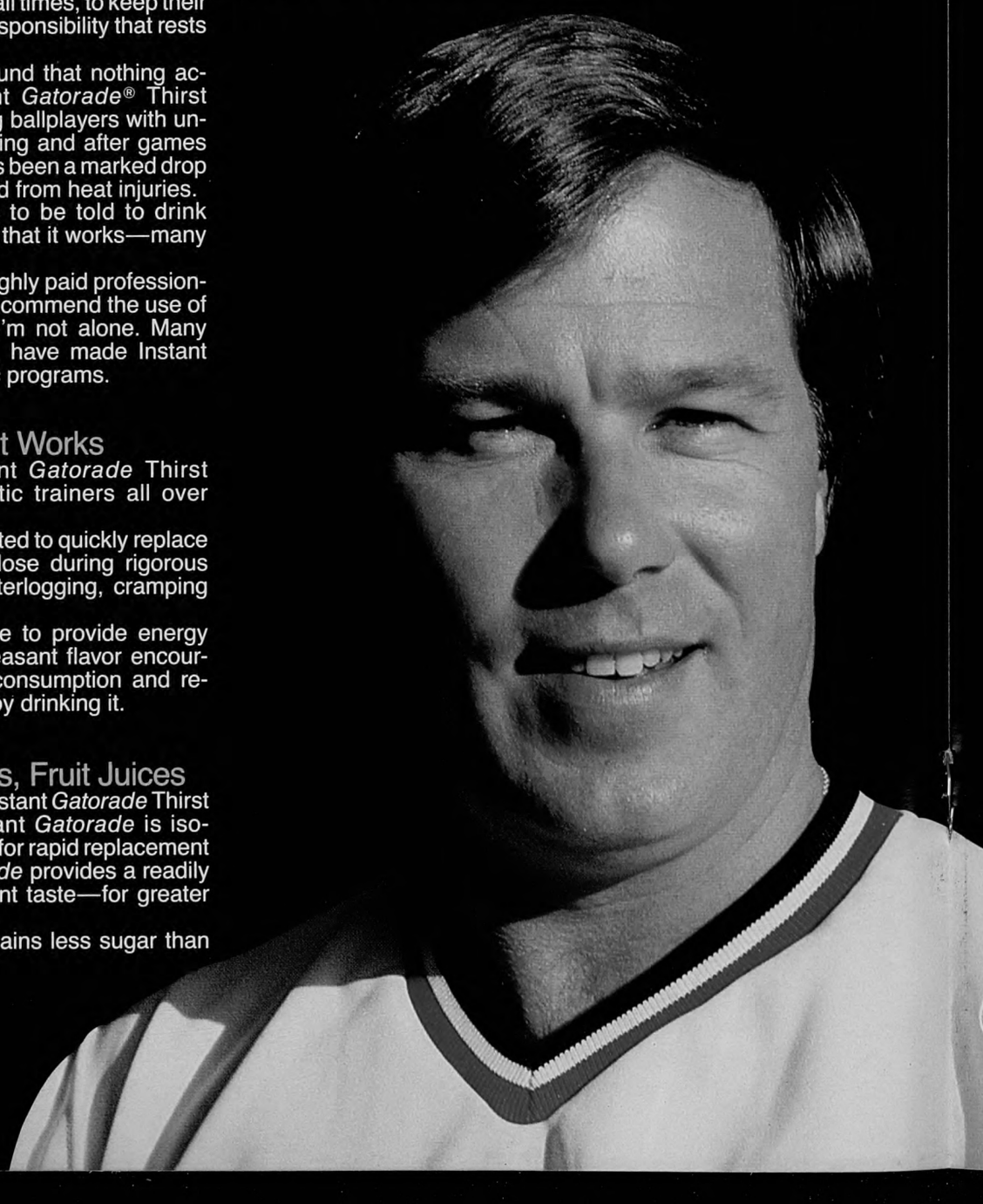
Instant *Gatorade* Thirst Quencher contains less sugar than most soft drinks and fruit juices, thus promoting quicker hydration. It replaces lost body salts, is more compatible with body fluids, is more easily absorbed.

First Choice of America's Athletic Trainers

The list of trainers and trainers' associations endorsing or recommending Instant *Gatorade* is as long as it is prestigious.

It's the "Official Sports Beverage of the Professional Baseball Athletic Trainers Society" and the "Recommended Thirst Quencher of the Professional Football Athletic Trainers Society." And the "Official Sports Beverage of the National Basketball Trainers Association."

Instant *Gatorade*, in fact, is used by more trainers, coaches and athletes than any other sports beverage in America. It works for the St. Louis Cardinals; it'll work for you.



Spring

Spring is the time for getting back into shape after a long winter layoff and adhering to a training program that grows more rigorous each day.

Spring, then, is an ideal time to make Instant *Gatorade* Thirst Quencher an essential part of an athlete's regimen. In the Cardinals organization, we use it right from the start at spring training in February. It keeps our players in top form through the workouts, the practices and the long season ahead.

Instant *Gatorade*, in fact, is the "Official Sports Beverage of Major League Baseball." And any other team that values the peak condition of its athletes.

Summer

Summer brings the high heat and humidity that can be perilous to my athletes' performances—and health. For any sport, any activity, Instant *Gatorade* is number one under the sun, to quickly replace fluids, to help protect against the danger of heat stress.

Instant *Gatorade* helps my players go longer, farther under the most trying hot-weather conditions. Maybe that's why it's the preferred electrolyte-replacement drink used in many marathons, triathlons, and 10K races and is an "Official Supplier to The U.S.A. Track and Field Team."

Fall

After our season winds down, football and soccer take center stage. It means heavy workouts in heavy protective gear that inhibits the body's ability to cool off.

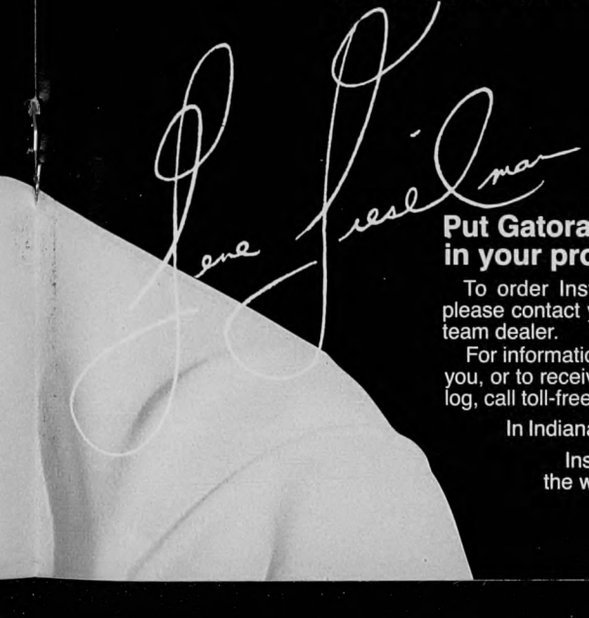
Instant *Gatorade* is formulated to help rehydrate an athlete's body, keep it cool under the stress of strenuous activity and to restore its natural mineral balance. Instant *Gatorade* is standard equipment for the pros, as well as for athletes in every sport, in every sphere of competition.

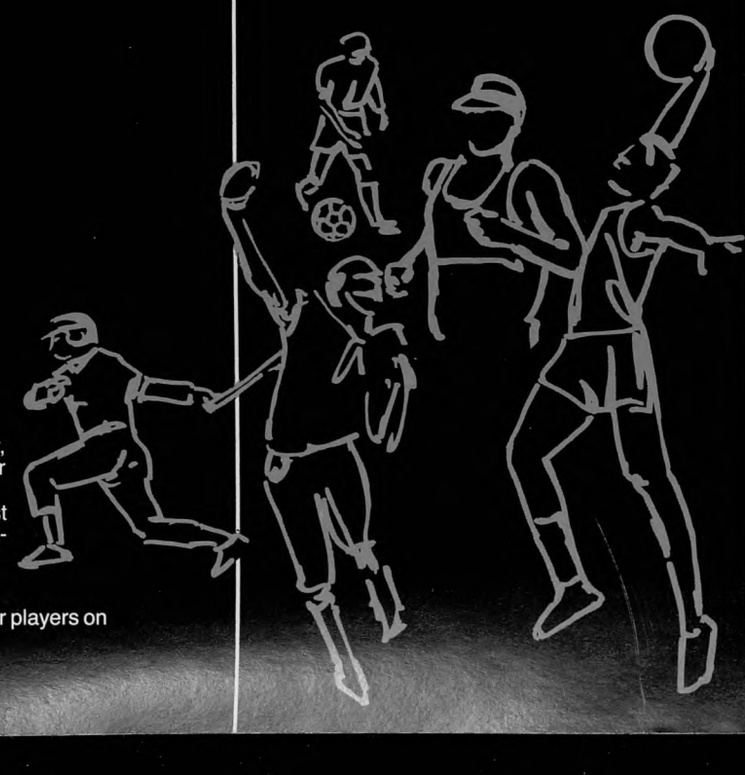
Winter

Winter is the most deceptive season of all. Because even though it may be cold out, an athlete still loses vital body fluids through perspiration. And even worse, is less aware that it's happening.

What's more, indoor sports like basketball are usually played in hot, dry arenas. Realizing this, the pros have made Instant *Gatorade* the "Official Sports Beverage of the National Basketball Association," to replace vital minerals and electrolytes lost during play.

No matter what the season, the sport, the environment, the level of play . . . Instant *Gatorade* is the most popular sports beverage today.





Put Gatorade in your program today

To order Instant *Gatorade* Thirst Quencher, please contact your local retail sporting goods or team dealer.

For information on the *Gatorade* dealer nearest you, or to receive a Free Gatorade Product Catalog, call toll-free: **1-800-428-6000**.

In Indiana, call: **1-317-542-7616**.

Instant *Gatorade*. We help keep your players on the winning edge.

Current Literature *from page 342*

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Abstracts *from page 336*

state of hydration and intestinal secretions, such as bile, enzymes and hormones. Outside factors can also influence the rate of digestion. Psychological factors are among these. The appearance of food can have either a negative or positive influence on digestion. Emotions such as anger and fear can delay digestion and/or increase motility, thus causing diarrhea. Any athlete knows of the sensation of "butterflies", which upsets the stomach. How long does it take before food becomes energy? Answer: 30 minutes to days. Trying to predict when a food will be utilized for energy is even more difficult than trying to predict exactly when a car will burn an individual gallon of gas.

Dave England ⊕

MOVING?

Please notify the National Office of your new address as well as your old address (at least 30 days in advance of publication).

CONTINUING EDUCATION REQUIREMENTS AND APPEAL PROCESS FOR THE CERTIFIED ATHLETIC TRAINER

Units of Continuing Education shall be approved by the Continuing Education Committee of the National Athletic Trainers' Association, Inc. Where it is applicable, the Continuing Education Unit (CEU) will be adopted as the unit of measurement to meet the Continuing Education requirements of the Certified Athletic Trainer of the NATA. The Continuing Education Unit (CEU) is defined as "ten contact hours of participation in an organized Continuing Education experience under responsible sponsorship, capable direction, and qualified instruction" (10 contact hours = one CEU).

To maintain Certification the minimum number of units to be accumulated every three (3) years Continuing Education period shall be 6 CEUs.

THE CERTIFIED ATHLETIC TRAINER is ressponsible for sending to the Continuing Education Office proof of completion of any Continuing Education Units (CEUs) and activities to be used in updating his/her record in a required period of THIRTY DAYS after completion.

THE CERTIFIED ATHLETIC TRAINER who does not accumulate a recorded number of 6 CEUs during the designated 3-year period (82/84, 85/87, etc) shall have his/her Certification placed on probation. Those Certified within the 3-year period shall have their CEU requirement prorated for that period only. Any action taken affecting the status of a Certified Athletic Trainer relating to Continuing Education may be appealed to the Continuing Education Office (Please refer to the Appeal Process section).

Certified Athletic Trainers serving as members of the Armed Forces **may** request (in writing) a waiver of CEUs during their tour of active duty. The request will be granted at the discretion of the Board of Certification.

Certified Athletic Trainers who are not members of the NATA, Inc. should consult the Board of Certification Office for the recording of their CEUs and appropriate fees.

The Continuing Education Committee has developed the following definitions of acceptable Continuing Education for Certified Athletic Trainers:

A. **NATA ANNUAL MEETING AND CLINICAL SYMPOSIUM:** 2 CEUs for registration and attendance of each annual meeting.*

B. **SCIENTIFIC WORKSHOPS OFFERED AT NATA ANNUAL MEETING AND CLINICAL SYMPOSIUM:** 1 CEU for every 10 contact hours of workshop. (1 contact hour = .1 CEU.)*

C. **NATA DISTRICT MEETINGS:** 1 CEU for every 10 contact hours will be awarded for the scientific program content offered at the District Meeting. (1 contact hour = .1 CEU.)

D. **NATA APPROVED SHORT TERM COURSES AND SCIENTIFIC MEETINGS:** Clinics, workshops, seminars, or NATA approved courses, etc., endorsed by the Continuing Education Committee. One CEU will be awarded for every 10 contact hours. Maximum of 2.0 CEUs per meeting. (1 contact hour = .1 CEU.)

E. **PUBLICATION OF ORIGINAL WORK:** Publication of an original paper in the NATA's quarterly publication *ATHLETIC TRAINING* will be awarded 1.5 CEUs per original paper. One CEU will be awarded per original publication in a state or national scientific journal or publication of a related professional organization.

F. **PROGRAM PARTICIPATION AT STATE, DISTRICT OR NATIONAL MEETINGS:** Credit units will be awarded for the presentation of an original paper or program participation at State, District or National level NATA meetings. One CEU will be awarded per meeting.

G. **PROMOTION OF ATHLETIC TRAINING TO OTHER GROUPS:** The presentation of athletic training to nonrelated organizations and civic groups will be awarded .5 CEU per presentation.

H. **TEACHING OF ATHLETIC TRAINING COURSES:** .5 CEU will be awarded for each credit hour of actual teaching that is not a part of your job description, not to exceed 2 per year.

I. **STUDENT TRAINER SUPERVISION:** (inclusive of high school trainers) .5 CEU per year will be awarded for supervision of a student trainer program for a full calendar year. If more than one Certified Athletic Trainer is supervising the student trainer, each receives equal credit.

J. **POSTGRADUATE STUDY:** Any study completed after receiving a Bachelors degree may be submitted for consideration by the Continuing Education Committee. The study must be related to improving one's Athletic Training skills and/or knowledge. There will be .5 CEU awarded for each credit hour accepted, with a limit of 2.0 CEUs per year to be accompanied by a copy of the transcript and course description.

K. **CORRESPONDENCE COURSES:** Correspondence courses in *ATHLETIC TRAINING, The Journal of the National Athletic Trainers Association, Inc.* will be awarded .3 CEU per course. Correspondence courses offered by other publications related to Athletic Training will need to be approved in advance by the Continuing Education Committee. All courses approved by the Continuing Education Committee will require an examination that certifies the satisfactory completion of the course.*

L. **OTHER NATA ACTIVITIES:**
1. Serving as a National or District Officer in the NATA will be awarded one CEU per year.
2. Committee membership in the NATA at the National level and/or District level will be awarded one CEU per year. An additional .5 CEU each year will be awarded for the chairmanship of the committee.
3. Certification testing. Those members participating in the certification examination will be

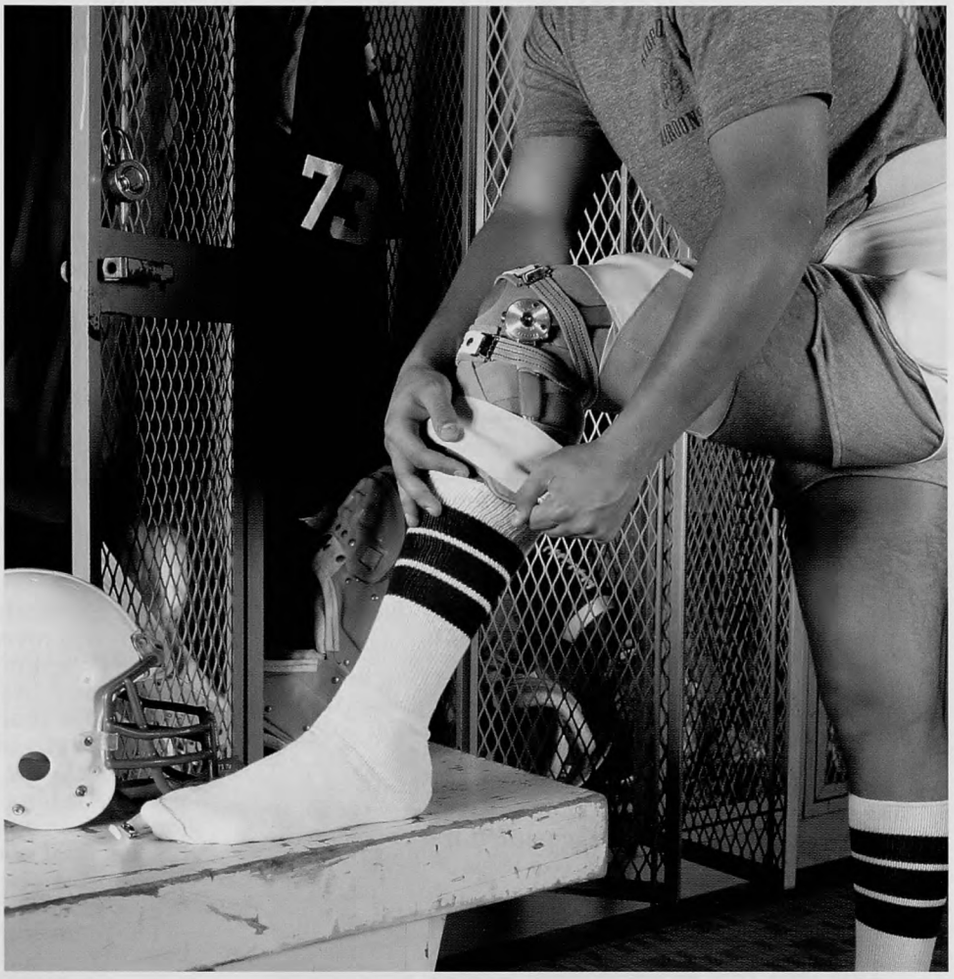
continued on page 343

A case for ROM control using the Lenox Hill® Brace in post-injury rehabilitation.

PATIENT PROFILE:
Male, 17 years of age, 6' 4", 265 lbs. – playing High School football with excellent chance to compete at college level. Sustained a Grade II medial collateral strain of his right knee during playing season.

COURSE OF TREATMENT:
A conservative course of treatment was called for by the orthopaedist. The Lenox Hill Brace with "Limited Motion" lock stop was decided upon. Rehabilitation began immediately in order to minimize muscle atrophy and loss of function. Over a three week period the Lenox Hill "Limited Motion" lock stop was progressively dialed out to a minus 10°.

DISPOSITION:
While the medial collateral ligament was allowed to heal, the strength of the injured extremity was actually increased through the extensive exercise program. With the physician keeping a close watch on the patient's progress, he was back on the playing field in less than 3 weeks. Furthermore, the treatment team felt the patient could safely play with the Lenox Hill Brace without compromising the chance of further injury. The patient continues to use the brace with full Range-Of- Motion and no decrease in either speed or mobility.



CONCLUSION:
The entire treatment team found the Lenox Hill Brace with the Limited Motion attachment to be the most effective and cost efficient method of treating ligamentous knee injuries. The treatment team included Orthopaedist – Ted Sykes, M.D., Physical Therapist – Dan D. Smith, R.P.T. and Head Coach, Athletic Director – Dave Rider.

Lenox Hill Brace, Inc.

Lenox Hill Brace, Inc., 244 East 84th Street, N Y, N Y 10028 (212) 570-2900

Committee Forum

Certification

Schedule of Future Sites and Dates **NATA Certification Examination**

All regional sites are subject to a **minimum** of **six** candidates per site and limited to a **maximum** of **thirty** candidates. Completed applications must be received by the Certification Office within the prescribed deadline for the exam date chosen.

January 19, 1986 — Deadline for receipt of applications is December 2, 1985

New Britain, CT
Montclair, NJ
Coraopolis, PA
Greensboro, NC
Anderson, IN
Madison, WI
Forth Worth, TX
Albuquerque, NM
Costa Mesa, CA
Richmond, KY
Cheney, WA

March 16, 1986 — Deadline for receipt of applications is February 3, 1986

Boston, MA
Mechanicsburg, PA
Columbia, SC
Holland, MI
Granville, OH
Lincoln, NE
Greeley, CO
Sacramento, CA
Portland, OR

May 18, 1986 — Deadline for receipt of applications is April 7, 1986

New Britain, CT
Montclair, NJ
Virginia Beach, VA
Anderson, IN
Chicago, IL
Lawrence, KS
Houston (Katy) TX
Tucson, AZ
Costa Mesa, CA
Richmond, KY
Seattle, WA

July 13, 1986 — Deadline for receipt of applications is June 2, 1986

Boston, MA
Claymont, DE
Coraopolis, PA
Madison, WI
Dayton, OH
Maryville, MO

The following date will be open to re-exam candidates only: November 23, 1986 — Deadline for receipt of applications is October 13, 1986.

Bethlehem, PA
Charlotte, NC

Application requests *must* be in written form. It is suggested that you submit your request to the following address at least four months prior to the exam date:

NATA Board of Certification
Application Request
1001 East Fourth St.
Greenville, NC 27834

Grants & Scholarships

The first NATA scholarship was the 1970 William E. Newell Award in the amount of $250.00. Since then the NATA has awarded $141,250.00 to deserving members of the Association. These scholarships have been totally funded by the members of the Association and by private corporations and scholarship funds. We are very grateful to those members and corporations who have been so generous and supportive of these scholarships. The sponsors of each scholarship are noted in the 1985 list of award winners in this issue (See Association Activities). We could not make these grants without the help of our friends who have supported us for so many years.

This past year at the Annual Clinical Symposium, twenty-two awards of $1000 each were made. There were ten undergraduate awards, eleven graduate awards and an achievement award for top score on the Certification Examination.

Next year we are raising the awards to $1500 each and we hope to be able to continue raising the amounts of the awards to meet the increasing costs of education. In 1985 more than 55% of all qualified applicants received an award.

Following is a description of the types of scholarships and the general requirements for each one:

The NATA Grants and Scholarships Committee reviews applications for three categories of scholarships: Undergraduate, Curriculum, and Post Graduate student athletic trainer categories.

The Undergraduate Scholarship is for an undergraduate student in the sophomore or junior year of baccalaureate degree study. If the student is in a program of study requiring more than four years, then he/she may be in the third or fourth year of study.

The Curriculum Scholarship is for a junior in an NATA Approved Undergraduate Athletic Trainer Education Program. A student in a program which requires more than four years of undergraduate study must be in the third or fourth year.

The Post Graduate Scholarship considers students in their final year of a four year baccalaureate degree or those returning to school. If the program of study is no longer than four years, then the student must be in his/her final year. The student must signify an intention to continue academic work beyond the baccalaureate degree as a full-time graduate student.

The following are basic requirements for eligibility.

1. In all scholarship categories the applicants must be a member of the NATA for at least one year prior to the deadline date for submitting completed applications (*February 1, 1986*).
2. NATA scholarships will not be awarded to the same student two consecutive years.
3. The student must have at least a 3.00 (based on a 4.00 maximum) grade point average.
4. The student must signify an intent to continue academic work at the appropriate level.
5. The student must signify an intent to pursue the profession of Athletic Training as his/her means of livelihood.

There is also another type of scholarship given and that is to the children of an NATA Certified Athletic Trainer who was an active member of our profession and Association at the time of death. This award is from the National Athletic Trainers Association Benevolent Fund and is named in memory of Warren H. Lee, the

former Head Athletic Trainer at the University of Arizona. The funds are to be used for tuition, fees, board, room and books at an accredited university, college or junior college. Any Certified Athletic Trainer may submit a nomination for this award.

Professional Education

Sayers "Bud" Miller Distinguished Athletic Training Educator Award

Nominations are being received for the annual **Distinguished Athletic Training Educator Award** to be presented by the NATA Professional Education Committee in recognition of excellence in athletic training education:

I. Qualifications

To be nominated for the award, educators must have the following qualifications:

1. Current member of the National Athletic Trainers Association, Inc.
2. Member of a teaching faculty in the area of athletic training/sports medicine for at least ten (10) years.
3. Minimum of ten years of outstanding service in the area of athletic training education and research.
4. Recognized excellence in the field of athletic training education.
5. Outstanding service in district, state or national professional organizations concerned primarily with the field of athletic training.
6. Evidence of quality in publications and public speaking on topics in athletic training/sports medicine.

II. Nomination Procedures

Nominations may come from any certified athletic trainer, athletic training student, or faculty member of a college or university. The nominator must submit the following materials:

1. The candidate's current personal resume which includes:
   a. Academic backbround
   b. Employment background
   c. Published research and other publications (journal articles, books, etc.)
   d. Course work taught (during past five years)
   e. Classroom teaching innovations
   f. Course work/curriculums developed
   g. Professional memberships
   h. Positions on state, district, or national level of the National Athletic Trainers Association, Inc.
   i. Positions on state, district, or national level of related sports medicine professional organizations
   j. Consultant work
   k. Speaking engagements on community, state, regional, and national levels
   l. Community service
   m. College or university service (i.e. committee involvement, thesis advertising, etc.)
   n. any other pertinent materials
2. A minimum of three letters (additional letters may be submitted) from professional colleagues, administrators, or students providing detailed rationale in support of the candidate's nomination.

Nominations including the above materials should be sent to the Professional Education Committee Project Director, Honors and Awards, and must be received by **March 1, 1986.** Presentation of the award will be made to the recipient at the 1986 NATA Annual Meeting and Clinical Symposium in Las Vegas, Nevada. Send nominations to:

Ken Murray
Athletic Department
Texas Tech University
P.O. Box 4199
Lubbock, Texas 79409

Research & Injury

Free Communications Call for Abstracts June 1986

Each year during our National Convention, members are continually sharing ideas, procedures, techniques and innovations in and for the profession of athletic training. Most of these conversations are among small groups of members and much of the information exchanged would be highly meaningful for the larger group. Many of these ideas have been developed through systematic data collection and observations made by the athletic trainers in the performance of their responsibilities. The accumulation of this information represents an important form of applied research.

With this in mind, the NATA Research and Injury Committee will offer a **Free Communications Section** at our National Meeting in Las Vegas in June 1986. The purpose of this section is to provide a forum in which information regarding the techniques and knowledge attendant in athletic training rooms all over the country can be openly exchanged. In order to provide organization to this session, the Committee is issuing a **CALL FOR ABSTRACTS** from the NATA membership. The titles of the projects to be presented will be available to members prior to the convention so that they will know which topics will be discussed and at what time during the session.

The response to this session has been excellent. We encourage each member to participate in these information exchanges. So please submit your abstract soon and we look forward to seeing you in Las Vegas.

Yours in sport,

John W. Powell, PhD, ATC
Chairman
Research and injury Committee

Instructions for Completion of Free Communication Abstract

Please read all instructions before preparing abstract. Carefully develop your abstract so it can be placed easily in the space provided on the following page. Mail the original and **3 copies** prior to February 15, 1986.

1. Type title of paper or project in all caps.
2. Type the name of all authors with the author that will make the presentation listed first.
3. Indent three spaces on a new line and type the text of your paper.
4. Indicate any funding or grants information on one line at the bottom.

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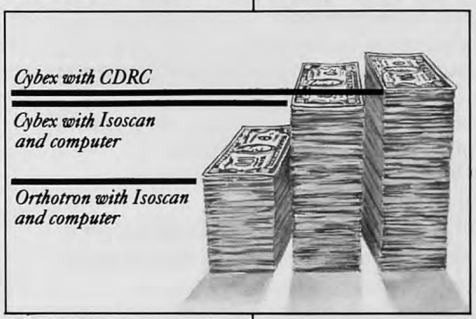

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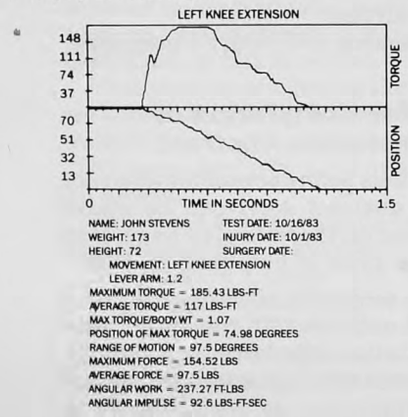

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5. Indicate if presenting author is "member of the NATA."
6. Indicate any audio-visual aids required.
7. Sign the completed abstract.

Remember: Your abstract should be of the informative type and should contain:

A. Sentence stating the specific objective of the project.
B. Brief statement of methods.
C. Summary of results.
D. Statement of conclusion.

Due to the time frame a limited number of papers will be presented. Each presenter will have fifteen minutes in which to deliver his/her topic. The Committee will select the papers to be presented. Submission of an abstract therefore does not mean you will automatically be responsible for a presentation. Notification will be made in plenty of time for final paper preparation.

Refer questions to: Russ Cagle, (503) 370-6420

MAIL TO: Russ Cagle
Research and Injury Committee
Athletic/P.E. Dept.
Willamette University
Salem, OR 97301

National Athletic Trainers Association Outstanding Research Award Call For Paper

The Research and Injury Committee of the National Athletic Trainers Association has as its overall mission to encourage members of our Association to conduct, document and report research in the athletic training profession. In order for our profession to continue to grow we must continually search for new methods of prevention, care and rehabilitation of athletic related trauma. We also have a responsibility to continually monitor and strive for excellence in our current procedures. To this end the NATA Board of Directors has approved the establishment of an Outstanding Research Award. The award is to be provided by I.P. Systems Sports Medicine Computer Software and will be in the form of a plaque and cash.

The Outstanding Research Award will be selected on a competitive basis from those completed and written documents submitted to Russ Cagle at Willamette University by February 15, 1986. A sub-committee for Outstanding Research Award consisting of Members of the NATA Research and Injury Committee will review all completed projects. Each member of this group will

Outstanding Research Award Application Form

Please complete the following information and return this form with the six (6) copies of your completed research project.

Name _____ **Position** _____

Institution Address _____

_____ _____
City State Zip

Phone ( ) _____

Home Address _____

_____ _____
City State Zip

Phone ( ) _____

Certification Number _____ **Membership Number** _____

Contributing Authors _____

_____

_____

If you have any questions relevant to this award, please contact:

Russ Cagle
Research and Injury Committee
Athletic/P.E. Dept.
Willamette University
Salem, OR 97301
(503) 370-6420

conduct the review without benefit of the author's name or clinical affiliation. From the projects submitted to this Sub-Committee, the most highly rated projects will be submitted to a Final Selection Committee. This Committee to consist of three athletic trainers who have proven competencyin the conduct of research projects. The two non-athletic trainers will be selected based on their record of excellence in research within the professional discipline closely associated with Sports Medicine i.e., Exercise Physiology or Biomechanics. All review will be done without knowledge of author or institution. The Final Selection Committee will submit their established order of merit to the Chairman of Research and Injury Committee for announcement of the award.

In order to be eligible for this Award the following criteria are established:

1. Principal investigator must be a Certified Athletic Trainer.
2. The project must be of original design and not have been published at the time of application.
3. The project must have been completed at the time of application.
4. The paper must be manuscript format according to the standards established by the NATA Journal and Award winners must submit an article to the NATA Journal relevant to their research.
5. Completed papers must be sent to Russ Cagle, Willamette University, Outstanding Research Award, Salem, OR 97301, prior to February 15, 1986. (**6 copies**)

The basic criteria for final selection will be as follows:

1. Originality
   a. Background for research design
   b. Creativity
   c. Need based on existing review of literature
2. Depth of Analysis
   a. Use of appropriate statistical designs and methodologies
   b. Application of theoretical and practical design
   c. Interpretations based on the project design
3. Application of profession
   a. Effectiveness and relationship of research to the clinical setting
   b. Application for growth of the profession
   c. Contributions to the theoretical and practical knowledge
4. Presentation
   a. Clarity of organization
   b. Internal consistency
   c. Bibliography

It should be noted that this project is not to be confused with the Call For Abstracts for the 1986 Free Communication Session in Las Vegas. The Outstanding Research Award is offered based on fully completed research projects and requires written documentation of background, method, data collection, findings, discussion bibliography, and auxiliary funding sources.

Call For Abstracts
NATA Free Communication
National Convention
Las Vegas, Nevada
June, 1986

Presenting Author: _____

Address: _____

_____

Telephone: ( ) _____ Audio Visual Needs: _____

Is presenting author a member of NATA? _____

Member Signature: _____

Membership No: _____ Telephone No: ( ) _____

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Protective Padding for Contused MP & PIP Joints

Jennifer Moshak

Receiving a pitched ball that travels at speeds close to 90 miles per hour often predisposes a catcher to a variety of pathologies. One particular type of pathology is caused by the repetitive trauma of catching hundreds of pitches in the same area of the hand. Catchers in women's softball, unlike those in baseball, use a catcher-first baseman's glove which has less padding in order to allow for the proper handling of the larger ball. This lack of padding and constant pounding result in injuries to the metacarpophalangeal (MP) joint and proximal interphalangeal (PIP) joint of the second phalanx. The resultant soft tissue damage produces swelling, discoloration, pain and dysfunction.

Protective padding can aid in the treatment of such an injury. The padding must protect the joints and still allow functional movement. I have had excellent results utilizing an Orthoplast fabrication.

The materials needed include:

- Orthoplast
- ¼" adhesive foam
- ⅛" adhesive foam
- scissors
- hot (120°-160°F, a hydroculator works fine) and cold (55°F, a cool whirlpool) water

The construction of the splint is simple:

Step 1: Using the ¼" adhesive foam, cut a donut large enough to cover the contused MP joint on the volar aspect. (Figure 1)

Step 2: Cut the ⅛" adhesive foam into a strip large enough to cover the volar surface between the

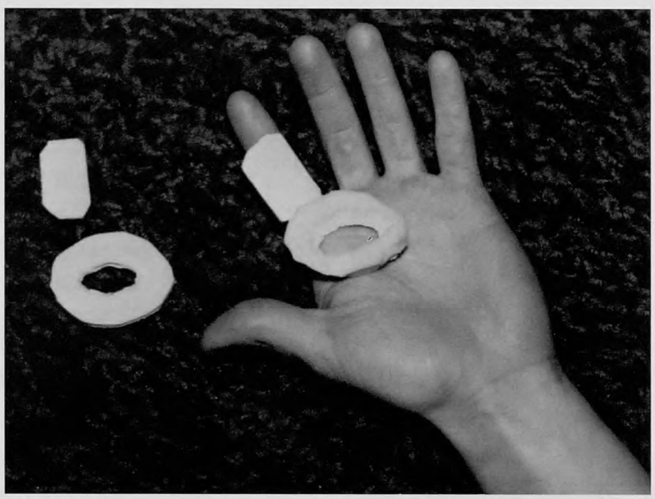

Figure 1

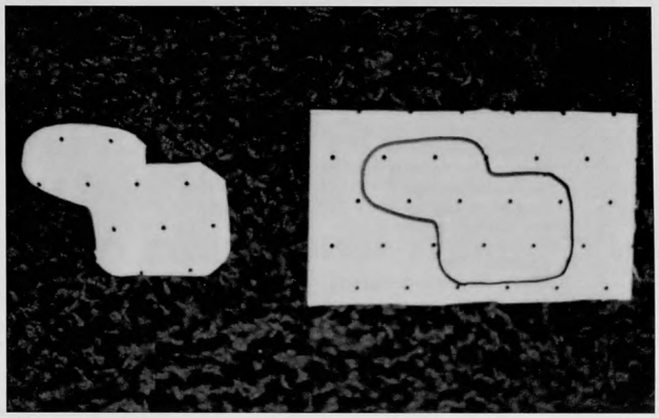

Figure 2

Ms. Moshak is an undergraduate student trainer at Western Michigan University, Kalamazoo, MI 49008.

Figure 3

Figure 4

MP joint and midpoint between the PIP and distal interphalangeal (DIP) joint of the second phalanx. (Figure 1)

Step 3: Cut the material so that it covers the two pads and extends over the lateral edge of the second phalanx. It will resemble a figure-8. (Figure 2)

Step 4: Heat the Orthoplast in hot water to make it pliable.

Step 5: Place the Orthoplast on the volar side of the hand and wrap the extending piece around to the dorsal side of the second phalanx. (It is not necessary to completely encircle the second phalanx.) This allows for stability and easy attachment. (Figures 3 and 4)

Step 6: Trim the edges and round the corners as needed.

Step 7: Immerse the Orthoplast in cold water and allow to set.

Step 8: Attach the adhesive pads to the mold.

The splint may be made for any of the phalanges 2-5 and can be adapted for application over a batting glove.

Note, because hard Orthoplast is used, the ball may have a tendency to pop out of the glove. Therefore, the splint should only be used as protection until the injury has healed. To protect against further injury when the splint is not used, it is suggested that the catcher place her fourth and fifth fingers in the fifth finger slot of the glove, the third finger in the fourth finger slot and the second finger in the third slot leaving the second finger slot unoccupied. It may feel awkward at first but it allows for a larger pocket and less direct trauma to the hand and phalanges. ⊕

STATEMENT OF OWNERSHIP MANAGEMENT AND CIRCULATION
(Required by 39 U.S.C. 3685)

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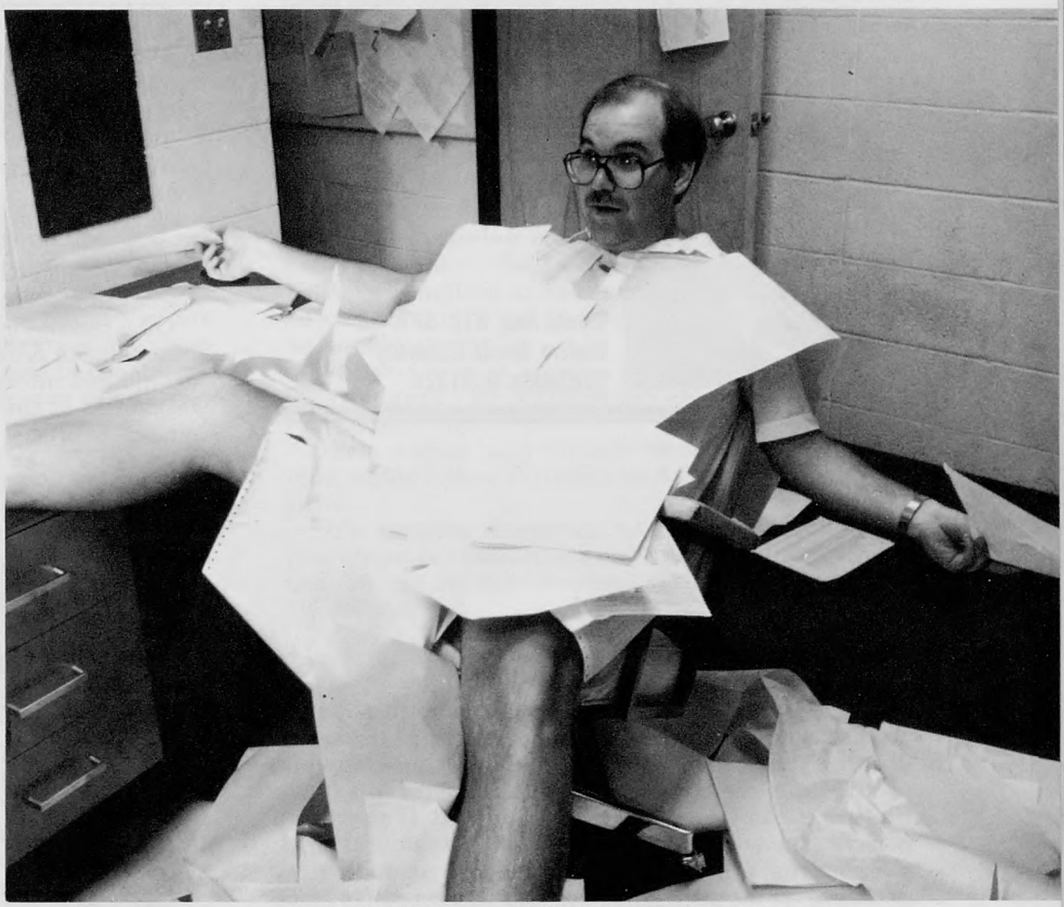

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Potpourri

Dennis Aten, ATC, RPT, MS
Eastern Illinois University
Charleston, IL 61920

The Nose Knows

Good Health Digest

In the colder months, nosebleeds are more common. That's because your nose knows it's winter. The season's drier air, combined with more frequent noseblowing, can irritate the sensitive inner lining of the nose, rupturing the tiny blood vessels inside. If you get a nosebleed, sit down, hold your head upright, and pinch the nostrils for several minutes. You can also try applying an ice pack since the cold will constrict blood vessels, reducing bleeding. Once the bleeding stops, moisten a piece of gauze with Neo-synephrine (any nasal decongestant will do) and place it in the nostril. If the bleeding doesn't stop, or nosebleeds are recurrent, see a doctor.

Megavitamins

Contemporary Nutrition

Patients should be quizzed about what supplements they use and why they take them. Potentially dangerous megadosing should be discouraged and patients should be informed that studies have conclusively shown that vitamin C will not prevent colds. Recent dietary recommendations for possible reduction of cancer risk do not recommend supplementation, and state that food supplements are of no value in preventing or treating arthritis. Patients also need to be warned that not only the fat-soluble vitamins can be dangerous, but water-soluble vitamins, once thought to be safe, also pose dangers when ingested in unnecessarily large amounts.

There is no reason to alarm patients who are merely ingesting a daily multivitamin or multivitamin-mineral supplement. It should be emphasized that supplements do not correct poor dietary habits since micronutrients are only a part of good nutrition and people should recognize that a diet containing a reasonable variety (applying the Basic Five Food Groups) will supply adequate amounts of the necessary nutrients for most people. It will be necessary to instruct patients to take a "buyer beware" attitude toward all food supplements as long as Congress continues to prevent the Food and Drug Administration's regulation of these products.

Exercise for Hypertension

News Release

An early morning visitor to the home of an aging man or woman in the People's Republic of China might find the occupant taking his or her high blood pressure "medicine": a series of gentle breathing, stretching and joint movement exercises called Tai Chi.

The exercises, unlike many medicines, have mostly positive side effects, such as relieving psychosomatic symptoms, improving joint flexibility and easing arthritis, according to Dr. Gene Stainbrook, faculty associate in the Center for Health Promotion Research and Development at The University of Texas Health Science Center in Houston.

On a recent visit to China Stainbrook and colleagues interested in preventive medicine and health education exchanged information with Chinese health care professionals at the College of Traditional Chinese Medicine in Beijing.

"The Chinese doctors encourage people to exercise because they believe it stabilizes and balances the nervous and circulatory systems. They claim that patients who practice Tai Chi have reduced reactions to stress and more stable circulations," Stainbrook explained. "The exercise is not aerobic. It's not aimed at increasing the capacity to exercise. The slow, rhythmic movements help put the systems in balance. It might be good for patients with other types of cardiovascular disease and, in contrast to aerobic exercise, poses few risks."

"We need to look at alternatives and complements to drugs because of their cost and negative side effects," Stainbrook said. "For example, some drugs taken for high blood pressure can lead to low blood pressure, or hypotension. In older people, hypotension can lead to falls and subsequent injuries.

"The Chinese also have studied hypertension and psychosomatic problems of medical school students and have developed exercises to help them," Stainbrook added. "This might help teach medical students about preventive medicine. Then, once the students become doctors, they will have practiced self-help methods and might be more likely to pass those skills on to patients."

While some Chinese feel that these exercises can be effective in the treatment of all cases of hypertension, a more conservative strategy for the West would be to demonstrate clearly its effectiveness as a primary or secondary therapy in treating select cases of mild hypertension, then to extend its application, he proposed.

Transplant Costs

Good Health Digest

The going rate for a heart transplant (assuming the availability of a donor) is about $70,000 according to the Health Insurance Association of America. That includes surgery, and doctor and hospital fees. A kidney transplant is in the $60,000 range, and the newly developed liver transplant procedure might cost up to $100,000.

"Burning Toe" A Hazard for Bicycle Riders

News Release

American Podiatry Assoc.

America's Olympic medals in cycling have increased interest in this sport as both a form of exercise and

recreation. But, according to Dr. Eric Hubbard, a California podiatrist, cyclists' feet can suffer pain and injury if certain precautions aren't followed.

Attending the 72nd Annual Meeting of the American Podiatry Association here, Dr. Hubbard, a member of the APA Board of Trustees, said that bicycle riders often find their feet sending "a painful, burning sensation to the smaller toes after miles of pedaling."

"The problem stems from a nerve compression which can lead to an inter-metatarsal neuroma — a tumor of the nerve lying between the heads of the metatarsal bones at the ball of the foot," he explained. "Pedaling can cause scar tissue to develop here and the constant pressure can make the nerve enlarge, bringing on the painful condition."

Dr. Hubbard, of Long Beach, said that there are several non-surgical treatments which are effective, as well as surgical corrections which should be considered only if more conservative measures are not totally successful.

"Bicycle riding is just like other sport — proper warm-up is required. Five or ten minutes of preliminary flexibility exercises — such as hanging over but not touching the toes, and standing up and down on the toes — will help prepare the body for a good ride," advised Dr. Hubbard.

He also suggests that riders always wear helmets and that they wear warm-enough clothes on chilly days.

"Bikes should also fit well," he concluded, "so pedaling is a smooth, fluid motion. A rider should wear shoes with stiff soles, and toe clips on the pedals will add stability." ⊕

Editorial *from page 314*

placed on an athlete to return to his or her sport too soon. The pressure comes from coaches and from peers. If one individual controls the well-being of a team, that individual should be a certified athletic trainer, responsible only to the team physician."

Not all coaches will look the other way when an athlete is injured. Davis recalls an incident when Dick Vermeil was coaching the Eagles and Philadelphia was playing a game at Tampa Bay.

"Wilbert Montgomery hurt his knee in the first half, strained it really," Davis said. "We were working on him in the training room at halftime. The team was going back on the field and Dick came in.

"Wil was getting dressed and Vermeil asked him how he was. He said, 'I'm fine, ready to go,' but Dick told him he would not play."

"Wil said 'C'mon, coach, I'm fine,' but Dick wouldn't take a chance." So, Montgomery sat, insuring he would run another day.

Davis wishes high schools who deal with kids, not pros, would follow Vermeil's lead and not take chances, either.

"It's reckless disregard by administrators not to provide proper care. If you don't provide the kids with a trainer, you are not providing the bare minimum care for athletes." ⊕

Eighth Annual N.A.T.A. Student Writing Contest

In an effort to promote scholarship among young athletic trainers, the National Athletic Trainers Association, Inc. sponsors an annual writing contest.

1. This contest is open to all undergraduate student members of the NATA.

2. Papers must be on a topic germane to the profession of athletic training and can be case reports, literature reviews, experimental reports, analysis of training room techniques, etc.

3. Entries must not have been published, nor be under consideration for publication by any journal.

4. The winning entry will receive a $100.00 cash prize and be published in *Athletic Training* with recognition as the winning entry in the Annual Student Writing Contest. One or more other entries may be given honorable mention status.

5. Entries must be written in journal manuscript form and adhere to all regulations set forth in the "Guide to Contributors" section of this issue of *Athletic Training*. It is suggested that before starting students read: Knight KL: Writing articles for the journal. *Athletic Training* 13: 196-198, 1978. NOTE: A reprint of this article, along with other helpful hints, can be obtained by writing to the Writing Contest Committee Chairman at the address below.

6. Entries must be received by March 1. Announcement of the winner will be made at the Annual Convention and Clinical Symposium in June.

7. The Writing Contest Committee reserves the right to make no awards if in their opinion none of the entries is of sufficient quality to merit recognition.

8. An original and two copies must be received at the following address by March 1, 1986.

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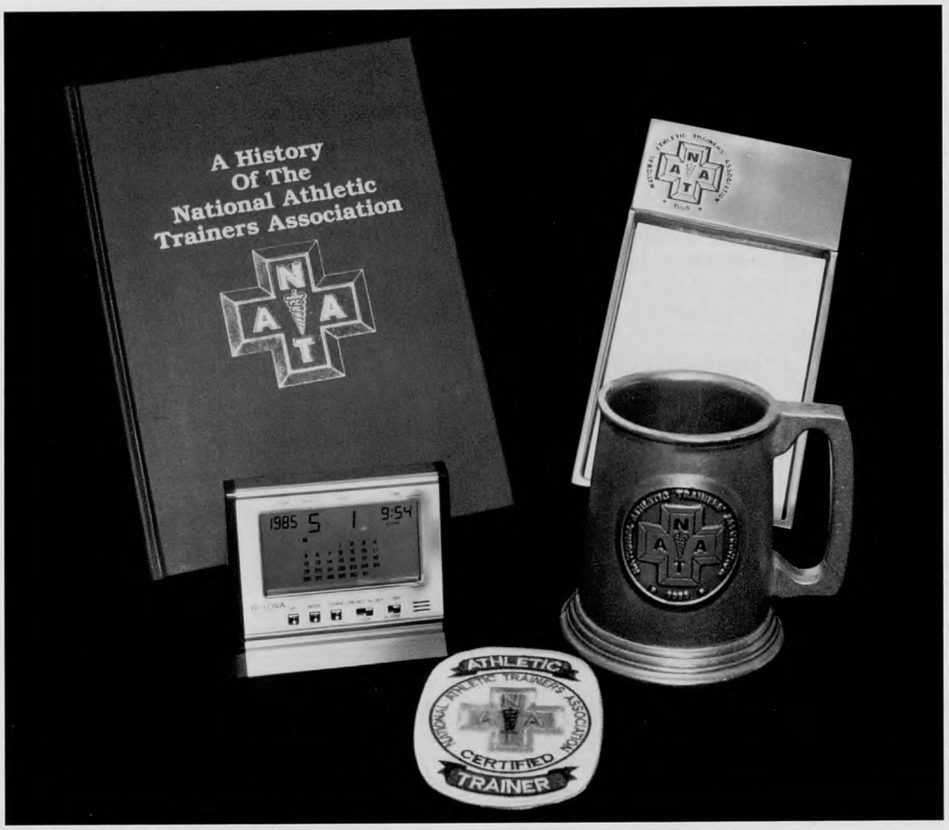

Too Late for Christmas, but perfect for 1986 birthdays, anniversaries, or a special remembrance for a special NATA person, the National Office has the above gift items available.

The Bulova "Century Calendar" quartz, gold-toned Clock is the most beautiful and functional gift the Association has ever offered. The black and white photograph simply can not do justice to this clock. LCD full calendar display can be programmed for 200 years! Back of the clock boasts the NATA customized logo. It is 3½" high, 4½" wide, 2¼" deep. This quality item may be purchased for $45.00. Item #86001.

The Commemorative Tankard (mug) is again available. This is a duplicate of the special edition tankard which was marketed for the NATA's 25th Anniversary, but this new edition has the revised 1985 logo. It too is a splendid example of finest craftsmanship, produced in silver alloy, with a 16-ounce capacity. Sure to become a cherished keepsake of all NATA members, this impressive item is priced at $18.00. Item #86002.

NATA's tastefully designed Memo Pad matches and complements the tankard in heavy, durable silver alloy. This practical addition to any desk is both eye-appealing and serviceable. Its overall dimensions are 4¾" x 8¾", accommodating standard-sized 4½" x 6" notepad (included). A life-time memento reasonably priced at $18.00. (Supply is limited.) Item #86003.

Newly designed NATA Arm Patches are $2.50 each. Certified members order Item #C-86004; Associate members, Item #A-86005; Student members, Item #S-86006.

Order *A History of The National Athletic Trainers Association* (our last publication with the old logo) while we still have this available. $7.50 Item #86007.

Not pictured are the new, elegantly sporty NATA Shirts. These fine ETONIC shirts are reverse blend of 60% cotton, 40% polyester for easy care comfort; white with a three-color NATA logo. Available in men's sizes S, M, L, XL; women's sizes S, M, L. Quality and style for only $22.00. Item #86008.

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Abstracts

John Wells, ATC, PT, PhD
UNC-Asheville
Asheville, NC 28804

"Effects of aerobic training on fat distribution in male subjects," Despres, J.P., et al., Medicine and Science in Sports and Exercise 17: 113-118, 1985.

The small fat deposits observed in endurance athletes support the notion that prolonged and regular aerobic exercise regulates body fatness to a low and stable level. The present study deals with the effects of aerobic training on subcutaneous fat morphology and fat distribution. The training program modified the body composition of the sedentary group as significant decreases in weight, percent body fat, sum of skinfolds, and fat cell weight were noted after the training period. However, the fat morphology of the sedentary subjects following 20 week training was not comparable to the long distance runners, who had on the average a lower sum of skinfolds and a smaller mean fat cell weight. Long-distance runners did not have a lower percent body fat than the sedentary subjects following 20 weeks training, although a trend was detected. For a given percentage of fat or a given fat mass, long-distance runners exhibited relatively less subcutaneous fat than the sedentary subjects. Although a trend was noticeable, only the ratio of the sum of skinfolds, uncorrected for the thickness of the skin, divided by fat mass was not significantly lower in marathon runners in comparision with the sedentary subjects following training. The observation that exercise alone can reduce body fat in men is in agreement with previous reports indicating that when the increase in energy expenditure is substantial, no control over caloric intake is absolutely needed, although the loss of fat is accelerated when caloric restriction is added to the training program. Another important effect of this training protocol was that no decrease in lean body mass occurred. The small fat cell weight values noted in the LDR group support the concept that exercise may regulate body fatness to a low and stable level. In the long-distance runners, weak or no correlations were noted between skinfolds and percent body fat. Aerobic exercise may have beneficial effects on aerobic fitness and body fatness in men. However, the 20 week aerobic program did not appear to deplete subcutaneous fat preferentially.

Brent C. Mangus

* * *

"An Outbreak of Pontiac Fever Related to Whirlpool Use, Michigan, 1982," Ellen J. Mangione, M.D., et al., *JAMA: The Journal of the American Medical Association* 253: 535-539, January 25, 1985.

Legionella Pneumophila was first identified in 1977, when it was recognized as the cause of Legionnaires' Disease. Since then, the organism has been implicated as a cause of Pontiac Fever, an epidemiologically and clinically distinct illness. Unlike Legionnaires' Disease, Pontiac Fever is a self-limited, nonpneumonic illness. In contrast to Legionnaires' Disease, Pontiac Fever has a short incubation period (five to 66 hours v two to ten day's for Legionnaires' Disease) and a high attack rate. Members of a church group attended an evening racquetball party. Within two days an explosive outbreak of flulike illness characterized by fever, myalgia, and chest pain occurred among 14 of the 47 individuals present. All 14 were women, nine other women and all 24 men who attended the party remained well. All the women who became ill had used the whirlpool located in the women's locker room. None of the women who remained well had used the whirlpool. A case of Pontiac Fever was defined as an illness occurring within 72 hours of attending the racquetball club with at least four of the following symptoms (1) fever (temperature greater than 37.5 C.) and/or chills (2) headache, (3) myalgia, (4) cough and/or chest pain and (5) arthralgia. Whirlpools may represent a risk of Legionellosis for several reasons. First, the water temperature, close to body temperature, favors the growth of human pathogens, including Legionellae. Second, disinfectant levels in whirlpools are often poorly maintained because of high halogen demand due to aeration, high water temperature, and large and variable organic load, the expense of halogen disinfectants used in whirlpool treatment systems. Since it has been shown that Legionellae are less susceptible to bromine than to chlorine, their survival in whirlpools using bromine as a disinfectant may represent a health hazard.

John Wells

* * *

"A Review of Scaphoid Fracture Healing in Competitive Athletes," Riester, John N., M.D., et al., *The American Journal of Sports Medicine,* 13 (3): 159-161, May-June 1985.

A fractured scaphoid is a common disabling injury occurring in contact sports. We reviewed 13 patients with 14 fractures of the scaphoid that occurred from 1973 to 1983. All were students participating in a contact sport in an intercollegiate athletic program, except one high school football player. Treatment consisted of a short arm thumb spica cast with the wrist in a neutral position. The thumb was included to the level of the interphalangeal joint. All patients were allowed to participate in sports immediately and with no restrictions. Since the National Collegiate Athletic Association and local high school rules do not allow unyielding surfaces below the elbow in contact sports, the casts were removed before competition and a custom-made silastic short thumb spica cast was applied. Following the game, the silastic casts were removed, and a new short arm thumb spica plaster cast was applied. All of the fractures of the middle third of the scaphoid that were treated early, healed. One patient had a delay in diagnosis and treatment of approximately 50 days while playing football. After the diagnosis of scaphoid fracture was made, he was treated in standard fashion and developed a nonunion. Ten of 11 fractures were treated within 24 hours of the time of injury. The average time of immobilization was six months. Two of three fractures of the proximal third of the scaphoid did

not heal. Our data indicated that nondisplaced middle-third scaphoid fractures can be effectively immobilized for competition in contact sports with the custom-made plaster or silastic casts described without compromising healing potential.

Dave England

* * *

"Radionuclide Therapy for Arthritic Knees,: Doepel, Laurie K., *JAMA: The Journal of the American Medical Association* 6: 744-745, February 8, 1985.

Studies over the past twenty years have shown that intra-articular radiation synovectomy - the destruction of diseased synovium induced by a B-emitting isotope injected into the joint - can provide short term symptomatic relief for the synovitis of rheumatoid arthritis. The problem of containing the radiation within the injected joint has discouraged the medical community from fully endorsing this therapy's clinical applications to minimize radiation leakage. To minimize radiation leakage problems a new therapy has been developed. This therapy combines a short-lived radionuclide with a carrier whose physical and chemical characteristics aid retention of the radioactive particles within the joint. After the relatively inert iron complex penetrates the synovium, it causes cell death. Macrophages and phagocytes clear away the cellular debris, essentially eliminating the synovium. Fifty-three knee joints of 44 patients with debilitating rheumatoid synovitis that had been unresponsive to conventional therapy were injected. A rheumatologist and an orthopedic surgeon independently tested each patient three, six and twelve months after treatment. After three months, 80% of the treated knees showed clinical improvements. This improvement persisted at the same level for one year. Sixty-three percent showed good or excellent responses, defined as complete, or near-complete, relief of symptoms in the treated joint. The treatment's effectiveness was complemented by an improved picture of radiation leakage compared with other radiocolloid therapies.

John Wells

* * *

"Digestion to Absorption - Converting Food To Energy," Fike, Steven, M.Ed., R.D., *National Strength & Conditioning Association Journal,* 7 (2), p. 38-39, April-May 1985.

An important and frequently asked question is: "How long does it take before what I eat becomes energy available for performance?" The answer: from 30 minutes to days. Confused? There is no absolute answer, as all the intricacies involved are not completely understood. Digestion is a series of physical and chemical processes which prepare food and beverages for entry into the blood stream. The physical process of chewing is under our control; however, the chemical process such as enzymatic and hormonal actions are involuntarily regulated by the body. The rate of digestion and gastric emptying is influenced by several factors, including volume, composition, osmolality of the meal, physical condition and emotional state. Once in the small intestine, another set of factors influence the rate of digestion. These factors include fiber content,

continued on page 319

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Announcements

Major Affiliation Agreement Joins NASV with NATA and USSA

Signing the affiliation agreement between the National Academy of Sports Vision (NASV) and the National Athletic Trainers Association are (from left); Dr. A. I. Garner, Executive Dirctor, NASV; Otho Davis, head athletic trainer for the Philadelphia Eagles and Executive Director of the NATA, and E. "Hal" Biggs, head athletic trainer of Bucknell University and Director, District 2, NATA.

Two major affiliation agreements signed this past summer provide for close ties between the National Academy of Sports Vision (NASV) and the National Athletic Trainers Association (NATA) and the United States Sports Academy (USSA).

The affiliation agreements give NASV members direct access to the more than 10,000 athletic trainers, coaches, faculty and students who are members of the other two groups. These organizations find common ground in their interest in improving the performance of both the amateur and professional athlete.

The National Athletic Trainers Association, founded in 1950, certifies athletic trainers employed by the National Football League, major league baseball and the National Basketball Association. Such a certified trainer is concerned with prevention of athletic injuries, recognition and evaluation of such injuries; the management, treatment and disposition of athletic injuries; rehabilitation of injured athletes; the organization and administration of the athletic training program, and education and counseling of athletes. Such a trainer works under the direction of a licensed physician when practicing the art and science of athletic training.

The NATA membership includes athletic trainers practicing in the fields of professional and school sports education.

The United States Sports Academy (USSA) is accredited graduate study program which serves as a resource in sport education with programs of instruction, research and service. Advanced degrees are available in the areas of sport coaching, sport management, sports medicine, and fitness management.

The affiliation provides a sound membership base from which the three organizations can benefit.

Department of Health & Human Services, F.D.A.

In September 1984, the Commissioner of the Food and Drug Administration established the Drug and Biologics Fraud Branch within the Division of Drug Labeling Compliance, Office of Compliance. The purpose of the Fraud Branch is to detect health fraud products at an early stage in their promotion and to take the necessary steps to remove such products from the market before the health or pocketbooks of American consumers are adversely affected.

Fraudulent products are marketed under a variety of circumstances. Some are distributed by sincere but misguided individuals; others are promotional schemes by "quick-buck artists" and swindlers. The FDA is aware that purveyors of fraudulent drug products are distributing various formulations to individuals represented by our Association who have serious disease conditions. In this regard, the Drug and Biologics Fraud Branch is interested in establishing with NATA an early warning system to detect the marketing of fraudulent drug products which affect the individuals with whom you come in contact. Athletic Trainers would be in the forefront for such early detection of products. Early warning on the marketing of fraudulent products will help the FDA initiate regulatory actions against manufacturers/distributors of such products before they affect large numbers of consumers. To this end, the FDA would like to obtain any information you may have or become aware of at any time concerning fraudulent products including any labeling, advertisements, promotions, etc. Please send any information to:

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The Food and Drug Administration
5600 Fishers Lane
Rockville, MD 20857

Major League Trainers Develop Training Tips For Youth Coaches

All National Youth Sport Coaches Association certified coaches throughout America will have first aid information at their fingertips, through a cooperative program developed by Gatorade Thirst Quencher, division of Quaker Oats Corp., and the Professional Baseball Athletic Trainers Society (PBATS).

Recognizing the need for on the spot first aid and training information, the PBATS group designed a wallet sized card containing tips on how to handle minor first aid situations. Included on the card is information on general body warm ups, fluid replacements, heat cramps and heat exhaustion and how to handle the problems as they arise during practice or game situations.

PBATS president Charlie Moss, head trainer of the Boston Red Sox, said "Trainers for the major league teams get as many as fifteen phone calls per week from parents and youth sport coaches whose kids have sustained some type of injury. Many of them think we can prescribe a cure over the phone, but by then it's a little too late to explain preventive methods or offer first aid advice that could have spared youngsters pain and loss of playing time. This was one of the reasons for developing the Gatorade training and first aid card."

The NYSCA, in cooperation with the PBATS group and Gatorade, has been distributing the wallet sized cards to every volunteer coach now completing the certification program, and to coaches who were certified in the past.

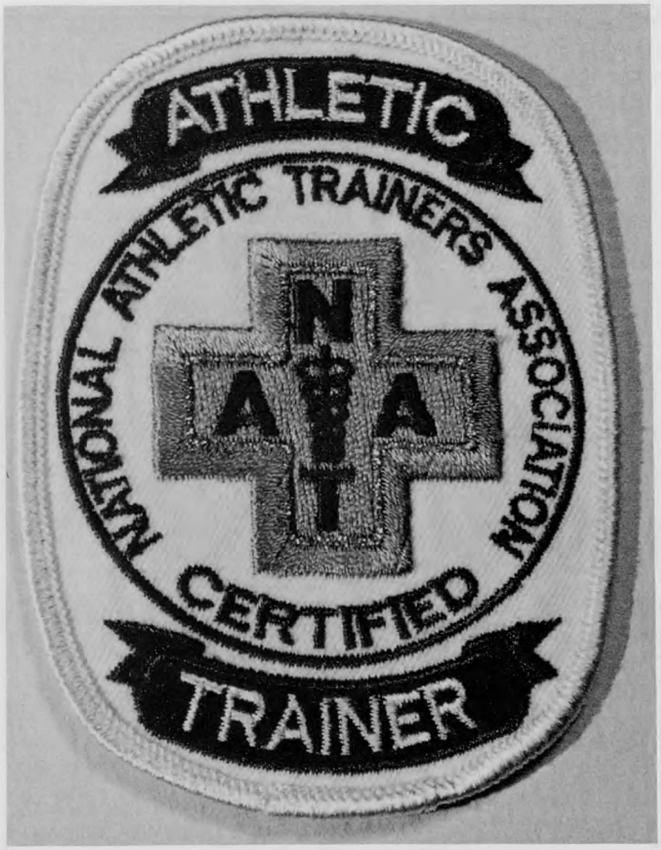
Thousands of cards have also been distributed to leagues using municipal and military facilities, as well as YMCAs, Boys Clubs and CYO league organization.

"The wallet training tips card is invaluable for coaches to offer immediate assistance to injured athletes," said NYSCA President Fred Engh. "We are pleased to be a part of this important program," he continued, "because this information will help cut the amount of injuries and playing time for kids and give coaches more knowledge and confidence in their day to day dealings with young athletes."

For more information contact:

Mike Schneider
NYSCA National Headquarters
2611 Old Okeechobee Road
West Palm Beach, FL 33409

NATA Arm Patch Distributed To Enhance Public Awareness



The new NATA logo and the term "athletic trainer" will be seen and better understood by millions of Americans in 1986 if every active member of the Association will take a few minutes to use a needle and thread.

That is because the Board of Directors has approved distribution of an arm patch bearing the new NATA logo to every certified, associate and student member of the Association. The Board's intent is to give one patch to each member so that it may be worn on the right shoulder of outer apparel. Additional NATA arm patches can be purchased by members in units of two for $5.

It is expected that by wearing the NATA emblem, more people will come to understand and identify athletic trainers in their important role as allied health care professionals in sports.

"Wearing the patch is a simple thing all members can do that has the potential to make a huge contribution to our national awareness program," explains NATA President Bobby Barton.

"Many of our members are seen caring for athletes on national television," Barton said. "That may be one way by which the NATA's identifying symbol is carried into America's living rooms.

"But there is another message conveyed when something like that happens," Barton said. "That is, the TV viewer may make the connection that the athletic trainer at the local high school is wearing the same emblem. That patch then becomes a seal of approval from the NATA. It is saying that the local high school athletic trainer wearing that emblem is providing the same quality care that is received by the nation's most prominent athletes."

The emblem distribution program has been approved for their members by the Professional Football Athletic Trainers Society, the Professional Baseball Athletic Trainers Society and the National Basketball Trainers Association. Their respective executive committees have ensured that three patches will be received by each of their members.

Separate emblems have been produced for Certified, Associate and Student classifications. NATA members who wish to purchase additional emblems are encouraged to do so at their earliest convenience. Please send a check or money order to "NATA Emblems", 1001 E. Fourth Street, Greenville, N.C. 27834. Specify your classification and allow four weeks for delivery.

TO:	Certified, Associate and Student Members
FROM:	Otho Davis
REFERENCE:	New NATA Arm Patch

The NATA Board of Directors is requesting your cooperation in a program that is intended to help create a better understanding of the NATA athletic trainer. The program is simple, and it requires just a few minutes of your time. But it cannot work without your participation.

Last June, in San Antonio, the Board approved the mass production of a 4 x 3-inch arm patch bearing the new NATA logo. The approval was based on the Board's conviction that NATA members have been, and always are, willing to do something that is good for the profession and the Association. The Board feels confident that by wearing the NATA logo on your right shoulder, you can contribute to the public's better understanding of athletic training.

For that reason, one patch is being given free to everyone in the NATA classified either as a Certified, Associate or Student member. We hope you will take a few moments to affix it to the right shoulder of a

garment that will be visible to your athletes, coaches, educators, administrators and the public. Wear it with pride.

Also, we hope you will help us by purchasing two additional NATA arm patches to be worn on other garments. If you can, send $5 for two patches (or more, but in units of two please) to "NATA Emblems," 1001 East Fourth Street, Greenville, North Carolina 27834. Specify your proper classification and allow four weeks for delivery.

New NATA Sound/Slide Show Now Available on Videotape

A videotape version of the new NATA sound/slide presentation entitled, "Athletic Training: In The Public Interest," is available for purchase to members through the NATA office in Greenville, North Carolina.

The nine-minute sound/slide presentation was commissioned by the Association to help acquaint more people with the athletic training profession. The three-projector slide show was presented for the first time in the business meeting at the 36th annual NATA clinical symposium in San Antonio.

"Athletic Training: In the Public Interest" illustrates the critically important role played by NATA athletic trainers today in a diverse and expanding sports community. The well-rounded educational background of NATA certified athletic trainers is outlined in the audio-visual presentation. It emphasizes injury prevention, an often underestimated aspect of health care where athletic trainers are particularly valuable to athletes of all ages.

Since its production, "Athletic Training: In the Public Interest" has been presented to a variety of audiences, including school boards, parent groups, state legislators and others interested in learning more about the importance of this allied health care profession.

The new sound/slide presentation is available to NATA members for the cost of its reproduction, handling and postage. It may be ordered in one of three video formats: three-quarter inch, VHS or Beta Two (please note which format). All NATA members who interact with the public are encouraged to send a check or money order with the order form for $30 to the NATA, 1001 East Fourth Street, Greenville, NC 27834. Allow three to four weeks for delivery.

Athletic Training: In the Public Interest

Please indicate quantity and format:___ VHS (½ inch)

___ Beta Two (½ inch)

___ ¾ inch

Enclose $30 per videotape requested. Allow four weeks for delivery. Thank you.

Name _____
(please print)

Title _____

School/Company _____

Address _____

City _____ State ____ Zip _____

_____

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Blister Ban is a friction blister preventative that has been *proven* successful in preventing blisters. It has been extensively tested by athletes and recreationists alike, in a wide variety of sports activities. Activities that cover a broad range of foot movements, any of which produce friction heat that leads to blisters.

JUST WHAT IS BLISTER BAN?

Actually it's not a miracle, it only works like one. Blister Ban is a patented controlled dry lubricant that is natural and safe, even for the most sensitive feet. It's been used by pros and seasoned athletes to get them through the season without the pain and worry of blisters. It's great for anyone who is concerned about blisters. Blister Ban is applied to the *outside* of socks, especially on parts of feet prone to blistering. Simple, clean, extremely effective.

JUST STEP INTO BLISTER BAN AND YOU'RE READY FOR ACTION.

Just put some Blister Ban into a shallow tray. Put on your athletic socks and step into the tray. You should also rub some Blister Ban on areas of the socks where blisters are most likely to occur. Then, simply step into your athletic shoes and bring on the competition. You will be amazed.

HOW DOES BLISTER BAN WORK?

It's quite simple. The whole idea is to eliminate friction as much as possible. Body heat warms Blister Ban to a point where it acts as a lubricant in the "friction areas" eliminating "hot spots." This smooths out the shoe's contact with the sock, greatly minimizing friction on the skin. Eliminate the friction and you eliminate blisters. And that's what Blister Ban does.

"I've found Blister Ban to be one of the most exciting products to hit the athletic industry. It is by far the simplist and most effective way to prevent friction blisters from forming. And, even after research study testing athletes who are normally susceptible to blisters, Blister Ban proved extremely effective."

LEON SKEIE
Director of Sports Medicine and Professor of Physical Education, Orange Coast College, CA

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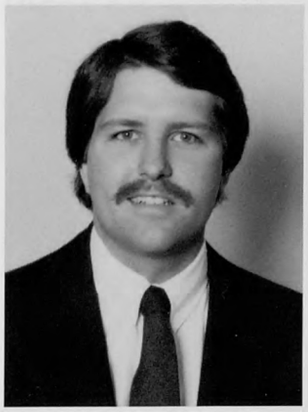


Brian Barry
University of Colorado
Boulder, CO 80309

Congenital Ureteropelvic Junction Obstruction: Abdominal Pain in Runners. Leslie, S.W., Tubor, R.B., *The Physician and Sports Medicine* 1985 July; 13(7): 105-9.

The Efficiency of Human Movement - A Statement of The Problem. Cavanaugh, P.R., Kram, R., *Medicine and Science in Sports and Exercise* 1985 June; 17(3); 304-8.

Effect of Endurance Exercise Training on Ventilatory Function in Older Individuals. Yerg, J.E., 2d, et al., *Journal of Applied Physiology* 1985 March; 58(3): 791-4.

Beta-Blockade and Response to Exercise: Influence of Training. Wilmore, J.H., Joyner, M.J., Freund, B.J., Ewy, G.A., Morton, A.R., *The Physician and Sports Medicine* July; 13(7): 60-71.

Effects of Aerobic Training on Fat Distribution in Male Subjects. Despres, J.P., Bouchard, C., Tremblay, A., Savard, R., Marcotte, M., *Medicine and Science in Sports and Exercise* 1985 February; 17(1): 113-19.

Orthotic Design From the New England Regional Spinal Cord Injury Center. Suggestion from the field. Lobley, S., et al., *Physical Therapy* 1985 April; 65(4): 492-3.

Nutrition Evaluation of Published Weight-Reducing Diets. Fisher, M.C., et al., *Journal of The American Dietary Association* 1985 April; 85(4): 450-4.

Biomechanical Basis of Growth Plate Injuries. Speer, D.P., Braun, J.K., *The Physician and Sports Medicine* 1985 July; 13(7): 72-80.

Epidemiological Assessment of The Role of Physical Activity and Fitness in Development of Cardiovascular Disease. Kannel, W.B., et al., *Journal of Applied Physiology* 1985 March; 58(3): 791-4.

Comparing Physical and Behavior Therapy for Chronic Low Back Pain on Physical Abilities, Psychological Distress, and Patients' Perceptions. Heinrich, R.L., et al., *Journal of Behavioral Medicine* 1985 March; 8(1): 61-78.

Effects of Dieting and Exercise on Lean Body Mass, Oxygen Uptake, and Strength. Pavlou, K.N., Steffee, W.P., Lerman, R.H., Burrows, B.A., *Medicine and Science in Sports and Exercise* 1985 August; 17(4): 466-71.

Response of Serum Hormones to Androgen Administration in Power Athletes. Alen, M., Reinila, M., Vihko, R., *Medicine and Science in Sports and Exercise* 1985 July; 13(7): 89-101.

Evaluating Research Literature: The Educated Clinician. Domholdt, E.A., et al., *Physical Therapy* 1985 April; 65(4): 487-91.

Isokinetic Endurance of Men of High and Low Strength. Barnes, W.S., *Perception Motor Skills* 1985 February; 60(1): 26.

Difficulty in Diagnosing and Treating Deep Vein Thrombosis in a Competitive Basketball Player. Sidler, G.L., Bugaiski, S.M., Sunderlin, J., Weltman, A., *The Physician and Sports Medicine* 1985 July; 13(7): 113-18.

Achillodynia And Loss of Heel Pad Shock Absorbency. Jorgensen, U., *American Journal of Sports Medicine* 1985 March-April; 13(2): 128-32.

Metabolic Characteristics of Skeletal Muscle During Detraining From Competitive Swimming. Costill, D.L., Fink, W.J., Hargreaves, M., King, D.S., Thomas, R., *Medicine and Science in Sports and Exercise* 1985 June; 17(3): 339-43.

Exercise Conditioning in Children with Asthma. Orentein, D.M., et al., *Journal of Pediatrics* 1985 April; 106(4): 556-60.

Utilization of an Anthropomorphic Model in Pelvic Examination Instruction. Rakestraw, P.G., et al., *Journal of Medical Education* 1985 April; 60(4): 343-5.

Response of Pre- and Post-Menopausal Females to Aerobic Conditioning. Cowan, M.M., Gregory, L.W., *Medicine and Science in Sports and Exercise* 1985 February; 17(1): 138-43.

Physiological Response to a 20-Mile Run under Three Fluid Replacement Treatments. Wells, C.L., Shrader, T.A., Stern, J.R., Krahenbuhl, G.S., *Medicine and Science in Sports and Exercise* 1985 June; 17(3): 364-70.

Motivation: The Key to Compliance. Shephard, R.J., *The Physician and Sports Medicine* 1985 July; 13(7): 113-18.

Contribution of Pelvic and Lower Limb Motion to Increases in the Angle of Passive Straight Leg Raising. Bohannon, R., et al., *Physical Therapy* 1985 April; 65(4): 474-6.

Bee Pollen: Living Up to Its Hype? Mirkin, G., *The Physician and Sports Medicine* 1985 July; 3(7): 159-60.

Effects of Fructose Injection on Muscle Glycogen Usage During Exercise. Hargreaves, M., Costill, D.L., Katz, A., Fink, W.J., *Medicine and Science in Sports and Exercise* 1985 June; 17(3) 360-63.

Influence of Sex Differences and Knee Joint Position on Electrical Stimulation-modulated Strength Increases. Fahey, T.D., Harvey, M., Schroeder, R.V., Ferguson, F.,

continued on page 319

CEU *from page 320*

awarded .5 CEU per testing date.*

4. Examiner Development Workshop. Completion of an NATA Certification Examiner Development Workshop will be awarded .3 CEU.*
5. Official liaison activity. Those members participating in the capacity of a liaison for the NATA will be awarded .5 CEU each year.
6. State Organizations. Those members serving as elected officers or committee chairpersons in a formally organized State Athletic Trainers organization recognized by NATA shall receive .5 CEU for each full calendar year served in that capacity. This would include those committee persons officially designated as working toward state licensure.
7. Visitation team members doing curriculum evaluations shall be awarded .5 CEU per visit not to exceed 1.0 CEU per year.

M. TAPES AND CASSETTES OF PROCEEDINGS: Purchase of audio cassette tapes from NATA will ean .1 CEU per tape acquired. Proof of purchase is necessary to receive credit.*

N. SPECIAL PROJECTS AND CONSIDERATIONS: All projects and educational activities must be submitted to the Continuing Education Committee District Representative for consideration. Projects such as development of, or participation in films, radio conferences, television programs or other audio-visual aids that may be used as a teaching aid or for public relations in the field of athletic training will be awarded .5 CEU per project. Preparation and presentation of scientific athletic training exhibits at the local, District or National level: Limit .5 CEU per exhibit. Current CPR is also creditable for .5 CEU per year. EMT is creditable for up to 1.0 CEU per Continuing Education period.

*CEUs for categories A, B, K, l-3, L-4 and M are automatically recorded and do not require individual reporting.

PLEASE REFER ALL QUESTIONS CONCERNING APPROVAL OF CEU PROGRAMS TO YOUR DISTRICT CONTINUING EDUCATION REPRESENTATIVE, ALONG WITH A SELF-ADDRESSED STAMPED ENVELOPE.

APPEAL PROCESS

The certified Athletic Trainer will receive an annual statement showing the number of CEUs accumulated. CEUs earned in excess of requirements for the current period cannot be credited to the next recording period.

If a Certified Athletic Trainer has not earned, reported, and had recorded the appropriate number of CEUs for the current reporting period, their Certification will be placed on probation.

As CEUs are reported, they will be recorded to make up the deficiency first. When the deficiency is satisfied the remaining and subsequent CEUs reported will be recorded for the current period. The person must earn six (6) CEUs for the current 3 year period as well as making up for deficiency.

A Certified Athletic Trainer who is put on probation for failure to earn sufficient CEUs may appeal. The Certified Athletic Trainer who fails to accumulate sufficient CEUs will receive notice that their Certification has been placed on probation.

An appeal may be filed by notifying the Committe on Continuing Education IN WRITING WITHIN THIRTY DAYS of the receipt of such notice. The appeal should be sent to the following address:

Committee on Continuing Education/Appeal
1001 East Fourth Street
Greenville, NC 27834

CEU REPORT FORM
National Athletic Trainers' Association, Inc.
Continuing Education
1001 East 4th Street
Greenville, NC 27834

Certified members of the NATA are responsible for submitting to the National Office proof of completion of any Continuing Education Units (CEUs) and activities to be used in updating his/her record within **THIRTY (30) DAYS** of the activity. Failure to do so will mean no credit will be given for that activity.

Enclose a copy of the program if advance NATA approval has not been given.

I request CEUs for _____

_____ Conference, Meeting, workshop, etc.

_____ _____ _____

(Total contact hours attended) (category) (Date of activity)

_____ _____ _____

(Name as printed in NATA record) (Membership number) (Classification)

_____

_____

_____

(Address)

I certify that the above information is correct _____

(Signature of member)

PHOTOCOPY THIS FORM FOR FUTURE USE

Book Reviews

Phil Callicutt, ATC, EdD
Federal Law Enforcement
Training Center
Glynco, Georgia 31524

Limits of Human Performance
(American Academy of Physical Education Papers: No. 18)
David H. Clarke, Ph.D.
Helen M. Eckert, Ph.D.
Human Kinetics Publishers, Inc.
Box 5076, Champaign, IL 61820
1985
144 pages
$12.00 - US/Canada
$14.50 - Foreign

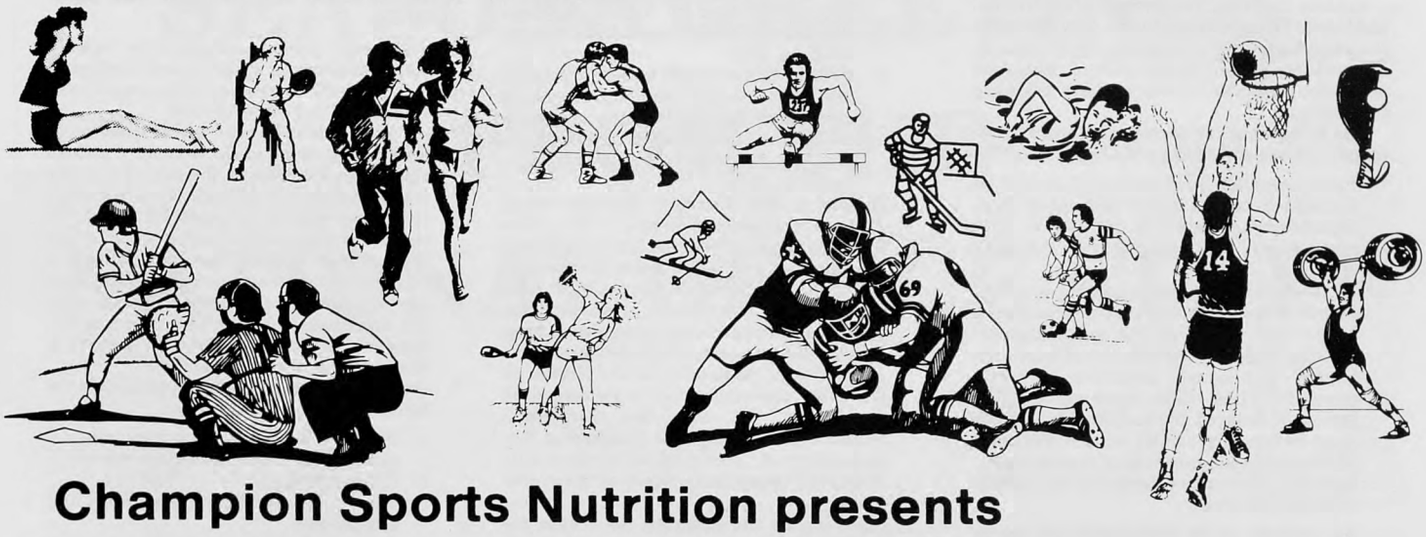
The academy papers are a highly technical publication and may be of interest to those athletic trainers who have a strong background in exercise science. I found certain articles applicable, among these were; Aspects of Anaerobic Performance, Body Composition and Athletic Performance, and the most outstanding were; "The Limits of Female Performance", by Christine L. Wells, and "Heat As A Limiting Factor In Endurance Sports", by Barbara L. Drinkwater.

I would not recommend this publication as a mainstay for everyone's library, but if you have time and a strong background in exercise science you might enjoy the "Limits of Human Performance".

Maximize Performance Minimize Injury
Charles P. Greene, Ed.D.
Arthur S. Pearl, M.D.
Terry Whielden, M.S., A.T., C., R.P.T.
Suniland Press
10760 Kendale South Blvd., Miami, FL 33176
1980
52 pages, illustrated
Single copy - $6.00
12 or more - $5.00 each
100 or more - $4.50 each

Upon reading this well illustrated booklet I found an extremely interesting document devoted specifically to the area of throwing injuries.

This informative booklet covers the following areas of throwing: medical aspects, warm-up, cool-down recovery, identification of pitching mechanics, pitching sequence, and teaching the specifics of the pitching delivery. The main thrust of the authors is that throwing related injuries can be prevented without compromising the performance of the athlete. This easy to follow booklet does an excellent job covering a complex subject, and should be of interest to all athletic trainers or coaches with baseball responsibilities. ⊕



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Guide to Contributors

Athletic Training, The Journal of the National Athletic Trainers Association, Inc. 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. Four copies of the manuscript should be forwarded to the editor and each page typewritten on one side of 8½ x 11 inch plain paper, triple spaced with one inch margins.
2. Good quality color photography is acceptable for accompanying graphics but glossy black and white prints are preferred. 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. Tables must be typed, not hand written. Personal photographs are encouraged; however photographs cannot be returned if the manuscript is published.

   All artwork to be reproduced should be submitted as black and white line art (either drawn with a Rapidograph [technical fountain pen] or a velox stat or PMT process) with NO tonal values, shading, washes, Zip-a-tone — type screen effects, etc. used.

   All artwork to be reproduced in black plus a second (or more colors) should be submitted as black and white line art (see above paragraph), with an Amberlith® or similar-type overlay employed for each area of additional color(s). Also, all areas of tonal value, shading, "washes", etc. should be supplied on a separate clear or frosted acetate or Amberlith® overlay. In addition, all areas to be screened (a percent or tint of black or color) should be supplied on an Amberlith® overlay. Artwork cannot be returned if the manuscript is published.
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 parentheses, (7), directly after the reference or name of author being cited, indicating the number assigned to the citation. Example of references to a journal, book, chapter in an edited book, and presentation at a meeting are illustrated below. Reference page accompanying manuscript should list authors in alphabetical order numerically.
   a. Knight K: Preparation of manuscripts for publication. *Athletic Training* 11 (3):127-129, 1976.
   b. Klafs CE, Arnheim DD: *Modern Principles of Athletic Training*. 4th edition. St. Louis, CV Mosby Co. 1977 p. 61.
   c. Albohm M: Common injuries in womens volleyball. *Relevant Topics in Athletic Training*. Edited by Scriber K, Burke EJ, Ithaca NY: Monument Publications, 1978, pp. 79-81.
   d. Behnke R: Licensure for athletic trainers: problems and solutions. Presented at the 29th Annual Meeting and Clinical Symposium of the National Athletic Trainers Association. Las Vegas, Nev, June 15, 1978.
4. In view of *The Copyright Revision Act of 1976*, all transmittal letters to the editor must contain the following language before manuscripts can be reviewed for possible publication: "In consideration of the NATA taking action in reviewing and editing my submission, the author(s) undersigned hereby transfers, assigns or otherwise conveys all copyright ownership to the NATA, in the event that such work is published by the NATA." We regret that transmittal letters not containing the foregoing language signed by all authors of the manuscript will necessitate return of the manuscript.
5. Manuscripts are accepted for review for possible publication with the understanding that they are original, have been submitted solely to *Athletic Training*, and are not under simultaneous review by any other publication. Materials taken from other sources, including text, illustrations, or tables, must be accompanied by a written statement from both the author and publisher giving *Athletic Training* permission to reproduce the material. Photographs must be accompanied by a signed photograph release form. Accepted manuscripts become the property of the *National Athletic Trainers Association*. For permission to reproduce an article published in *Athletic Training*, send request to the Editor-in-Chief.
6. Manuscripts are reviewed and edited to improve the effectiveness of communication between the author and the readers and to assist the author in a presentation compatible with the accepted style of *Athletic Training*. The initial review process takes from six to eight weeks. The time required to process a manuscript through all phases of review, revision, and editing, to final publication is usually six to eight months depending on the timeliness of the subject. The author accepts responsibility for any major corrections of the manuscript as suggested by the editor.
7. It is requested that submitting authors include a comprehensive abstract, a brief biographical sketch and acceptable black and white glossy photograph of themselves. **Please refrain from putting paper clips on any photograph.**
8. Published manuscripts and accompanying artwork cannot be returned. Unused manuscripts will be returned when submitted with a stamped, self-addressed envelope.

The following recommendations are offered to those submitting CASE HISTORIES:

1. The above recommendations for submitting manuscripts apply to case studies as well but only two copies of the report need be sent to the Editor-in-Chief.
2. All titles should be brief within descriptive limits. The name of the disability treated should be included in the title if it is the relevant factor; if the technique or kind of treatment used is the principal reason for the report, this should be in the title. Often both should appear. Use of subtitles is recommended. Headings and Subheadings are required in the involved report but they are unnecessary in the very short report. Names of patients are not to be used, only first or third person pronouns.
3. An outline of the report should include the following components:
   a. Personal data (age, sex, race, marital status, and occupation when relevant)
   b. Chief complaint
   c. History of present complaint (including symptoms)
   d. Results of physical examination (Example: "Physical findings relevant to the physical therapy program were...")
   e. Medical history — surgery, laboratory, exam, etc.
   f. Diagnosis
   g. Treatment and clinical course (rehabilitation until and after return to competition) use charts, graphs when possible
   h. Criteria for return to competition
   i. Deviation from the expected
   j. Results — days missed
4. **Release Form**
   It is mandatory that *Athletic Training* receive, along with the submitted case, a signed release form by the individual being discussed in the case study injury situation. Case studies will be returned if the release is not included.

The following recommendations are offered to those submitting material to be considered for TIPS FROM THE FIELD:

1. The above recommendations for submitting manuscripts apply to Tips From the Field but only two copies of the paper need be submitted.
2. Copy should be typewritten, brief, concise, in the first or third person, and using high quality illustrations and/or black and white glossy prints.

The following guidelines must be met for submission of papers or material to the "STUDENT TRAINER CORNER."

1. Author must be a student member of NATA.
2. Topics must relate to athletic training. (case reports, experimental reports, suggestions, new ideas, tips and/or specifics for a given problem)
3. Articles should be no more than 2 to 3 pages in length, double spaced.

Journal Deadlines

In order to avoid confusion and delays on contributions to the Journal the deadlines for various sections are provided below.

The Editorial Board will review papers submitted on an individual basis, work with the authors and prepare the papers for publication.

The deadlines are:

Journal	Deadline
Spring Issue	December 15
Summer Issue	March 1
Fall Issue	June 15
Winter Issue	September 15

Send material for "Announcements", "Case Histories", "Letters to the Editor" and miscellaneous items to:

Steve Yates, Editor-in-Chief
P.O. Box 7265-Sports Medicine Unit
Wake Forest University
Winston-Salem, NC 27109

Send manuscripts to:

Don Kaverman
Athletic Department
Ferris State College
Big Rapids, MI 49307
(616) 796-0461

Information on upcoming events for the "Calendar of Events" section should be sent to:

Jeff Fair, ATC
Athletic Department
Oklahoma State University
Stillwater, OK 74074

"Tips From the Field" and "New Products" should be sent to:

Barrie Steele
Training Room Bohler Gym
Washington State University
Pullman, WA 99164

Items for the "Student Trainer Corner" should be sent to:

Deloss Brubaker
U.S. Sports Academy
PO Box 8650
Mobile, AL 36608

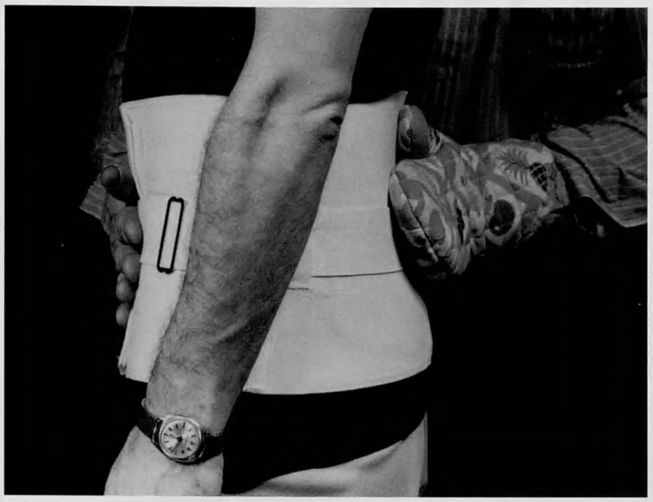
SEASONS GREETINGS FROM THE NATIONAL OFFICE STAFF

Barbara Mary Sandra Doris
Penny Lois
Susan Jewel
Dallas Donna

Upcoming NATA District Meetings

Grossingers, NY — January 12-15, 1986
Lincoln, NE — March 14-16, 1986
Greeley, CO — March 14-16, 1986
Portland, OR — March 15-16, 1986
Grand Rapids, MI — March 20-22, 1986

New Products



Medical professionals find the Ortho-Mold™ Orthoses very easy to fit with unprecedented patient comfort and acceptance.

When a heated plastic insert is placed into the thermobarrier pocket of the support and the binder is wrapped around the patient, the binder does 90% of the molding of the insert, making the fit extremely easy and accurate.

The system consists of Lumbosacral, Thorocolumbar and Hyperextension models. These orthoses are lightweight, inconspicuous under clothing, rarely ride up, and have been accepted by third-party payers. All models are highly supportive with circumference strap(s). Yet, Lumbosacral model allows almost a full range of motion.

For more information contact Ortho-Mold™, Inc., 858 Huntington Avenue, Boston, MA 02115. Or call collect, (617) 232-1201. ⊕

Advertisers

Certificate and Plaque Order Form For NATA Certified Athletic Trainers

The Board of Certification is offering a new graphically designed certificate printed in Old English Script with gold embossed NATA logo and seal of certification. Each certificate is professionally personalized with the athletic trainer's name, certification number, and date of certification. The certificate may be purchased on a 12″ x 16″ hardwood plaque protected by plexiglass, or ordered as the certificate of Certification only.

Please indicate below which of these two alternatives would better suit you:

_____ I wish to order the plaque mounted certificate for the price of $35.00 each.

_____ I wish to order the certificate of Certification for the price of $10.00 each.

Enclose this order form with a check or money order in payment for the plaque or certificate and mail to the following address:

NATA BOARD OF CERTIFICATION
1001 East Fourth Street
Greenville, North Carolina 27834

Use a permanent street mailing address. No post office boxes please. Delivery will be by United Parcel Service.

NAME _____
(as you wish it to appear on the certificate)

ADDRESS _____

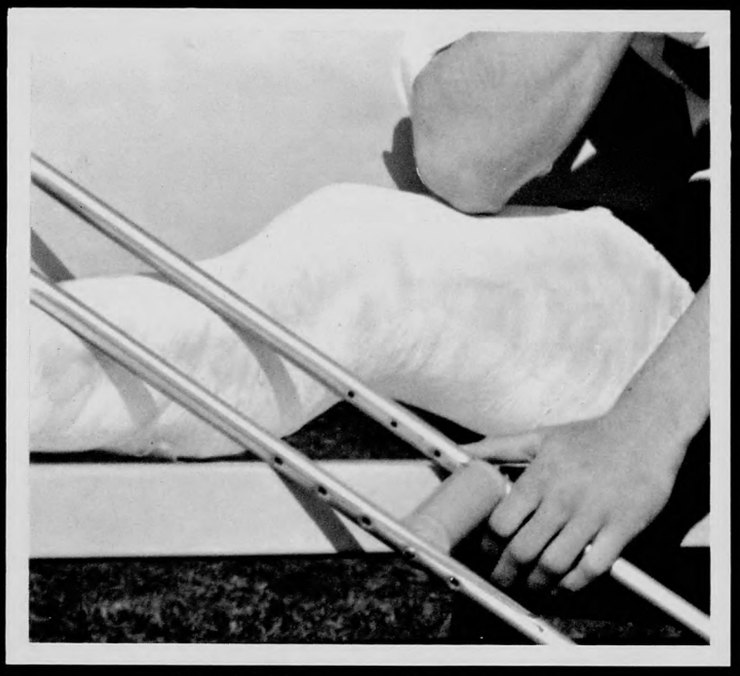
CITY _____ STATE _____ ZIP _____

Certification Number _____

Certification Date _____

Weigh the alternatives

8 oz. of prevention



25 lbs. of cure

The McDavid Knee Guard: The one brace with a proven record of protection.

About the only people left these days who'd even think of playing football without a helmet are people who have already played too much football without a helmet.

In the near future, it is safe to bet that most people will feel as strongly about preventive knee braces.

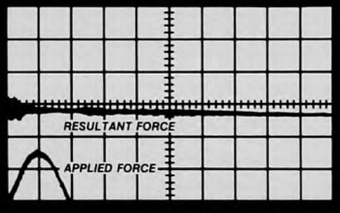
We at McDavid Knee Guard sincerely hope so—and not simply because we're the leading manufacturer of preventive braces.

Fact is, laboratory tests conducted by independent teams of doctors and engineers have demonstrated that the McDavid Knee Guard can reduce the chance of knee injuries by reducing both ligament stress and impact forces common to football and other high risk sports.

No other brace on the market today can legitimately claim the same proven effectiveness. But then, no other brace can match our design...or our materials... or our fifteen years of continuous research and development.

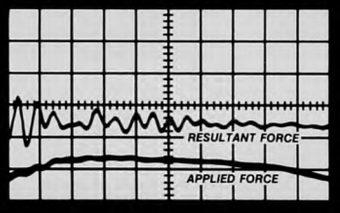
We'd like to send you more information about the McDavid Knee Guard. For your free brochure and test reports, please write to us at the address below or contact your local team dealer.

And this year, worry about running the plays—rather than running the risks.



McDAVID KNEE GUARD

Typical oscilliscope pattern of the impact test run on the McDavid Knee Guard shows very little energy absorbed into the system. The brace is acting as a resilient spring and efficiently managing the energy.



METAL BRACE

Same test run on a competitive metal brace. Pattern shows a high level of energy being transferred directly to the leg. The brace is not acting as a resilient spring, but is instead magnifying the negative effect of the impact force.

MKG

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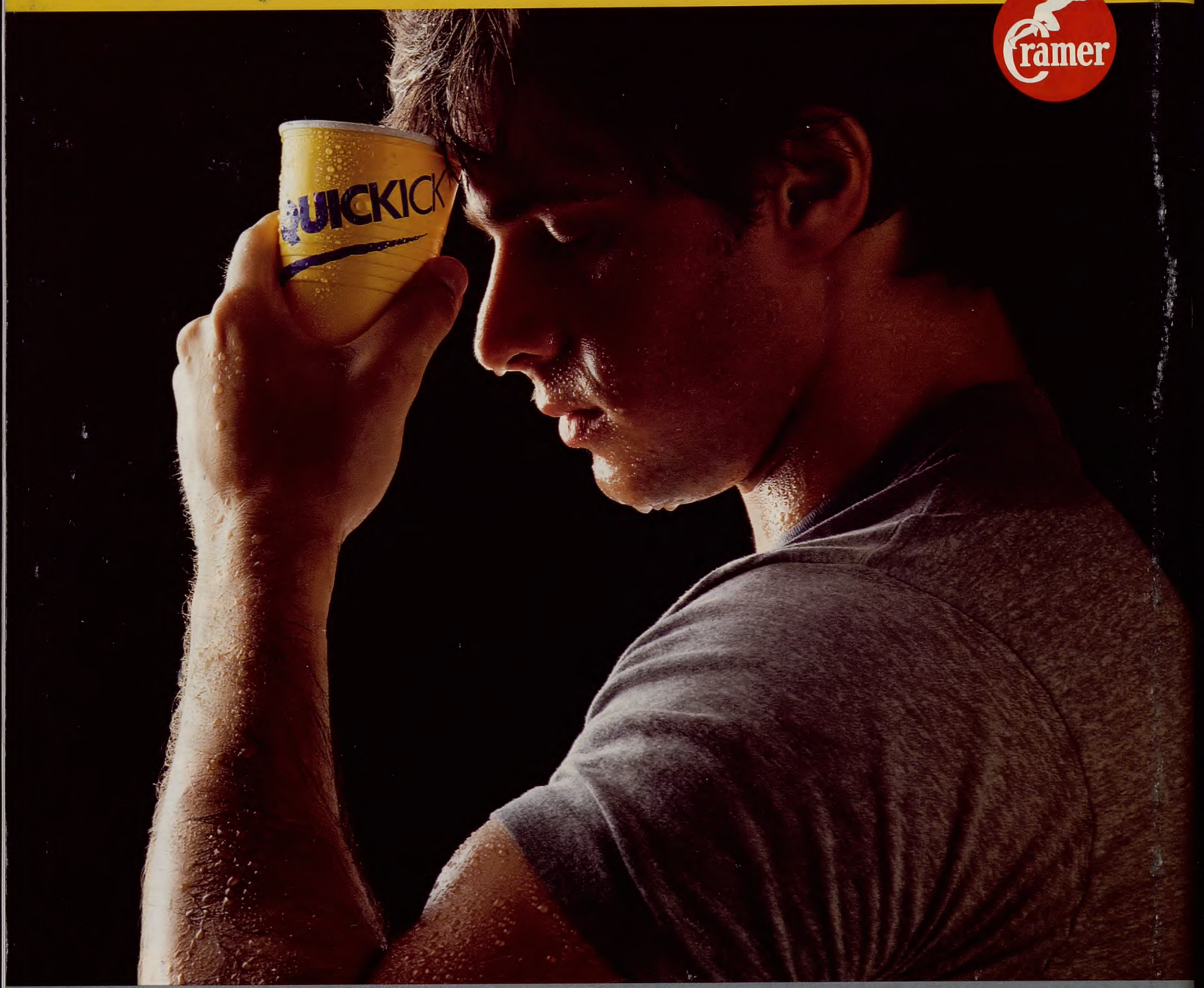
312-969-1280



QUICKICK. THE CHOICE OF WINNERS

In the field of electrolyte thirst quenchers, Quickick stands alone as the original sports drink, combining a winning taste with proven effectiveness.

TIME-TESTED

Developed over 25 years ago, Quickick is now being used by thousands of athletic teams.

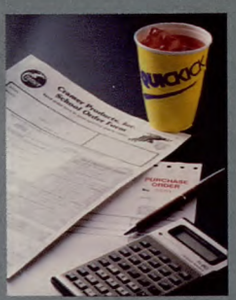
Quickick helps reduce heat-related problems, including cotton mouth, muscle spasms and heat cramps.

FIVE FLAVORS THAT TASTE GREAT

No electrolyte solution can be effective unless the athletes drink it. They prefer fluids that taste good, and that gives Quickick an advantage. Quickick comes in five great flavors: Punch, Orange, Lemon-Lime, Grape and new Lemonade. Quickick's great taste helps insure that athletes will drink it in sufficient amounts to rehydrate the body while replacing essential sodium, potassium and chloride electrolytes.

COSTS LESS

Coaches and trainers must prevent dangerous heat stress from striking their athletes. Quickick helps meet this responsibility at less cost.



Compared with any of its major competitors, Quickick is less expensive — an important consideration in these times when budgets are tight.

Specify Quickick when ordering from your local sporting goods dealer.

QUICKICK

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