

# ATHLETIC TRAINING

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION



## 25th Anniversary Issue

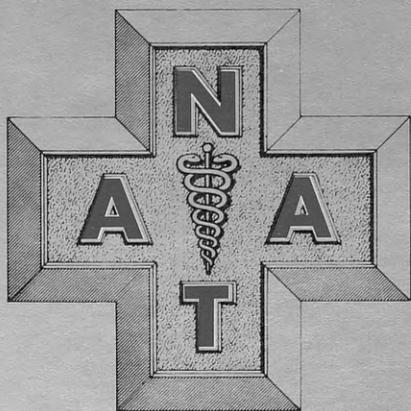
VOLUME 9

NUMBER 2

JUNE 1974



**The "shopper's guide"  
for more than 3800 trainers,  
coaches and related professionals...**



# **ATHLETIC TRAINING**

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

# CRYOPAC™

## the only First Aid Cold Compress Kit with Controlled Temperature and Pressure.

*Simultaneously cools and immobilizes injuries.*

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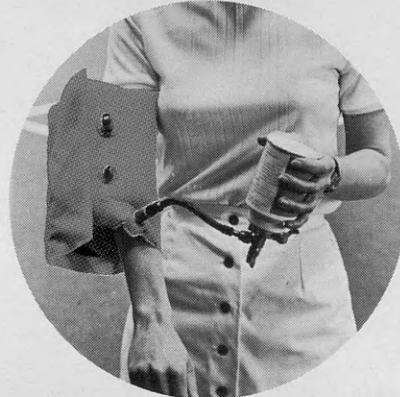
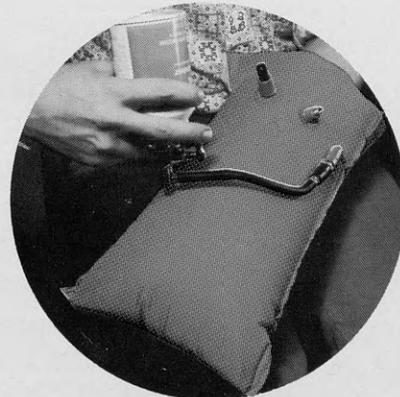
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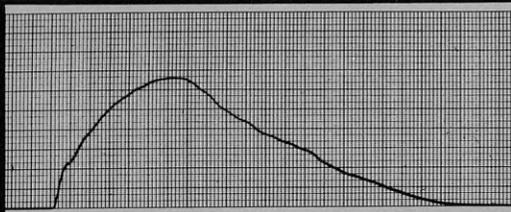
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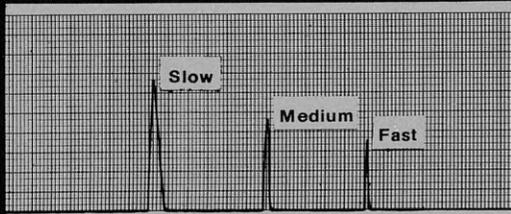


Each CRYOPAC™ kit contains three elements: a glove, a boot and a wrap, with six cans of CRYOGEN™ refrigerant, a valve and hose assembly, and complete instructions. All packaged in a convenient, lightweight and durable carrying case for portability.

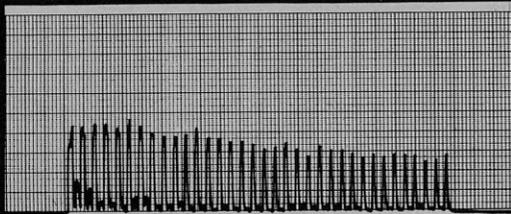
uninjured limb



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

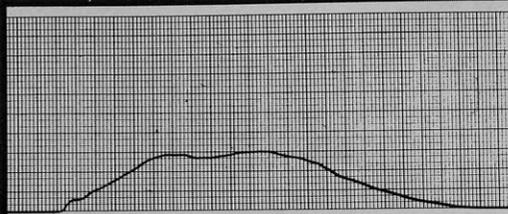


Test of muscular output at slow, medium, and fast contractile speeds.

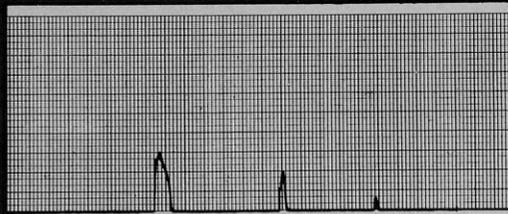


Test of muscular output over a series of repetitions at medium speed.

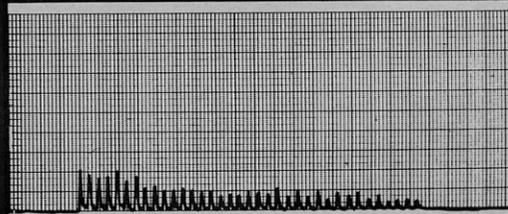
injured limb



Note 58% strength deficit and abnormal shape of curve



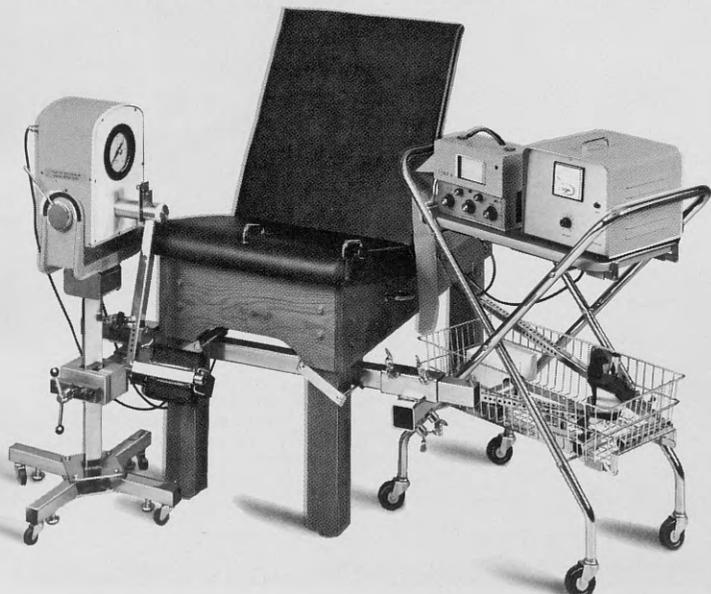
Note 80% power deficit (fast speed) as compared to 58% strength deficit (slow speed).



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

(Actual chart recordings shown 1/2 size.)

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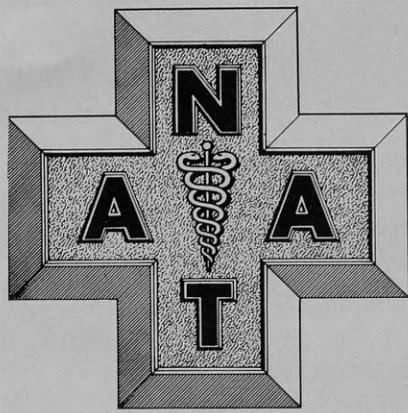
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## only CYBEX can quantify Strength, Power and Endurance deficits



# ATHLETIC TRAINING

The Journal of the National Athletic Trainers Association

Volume 9

Number 2

June, 1974

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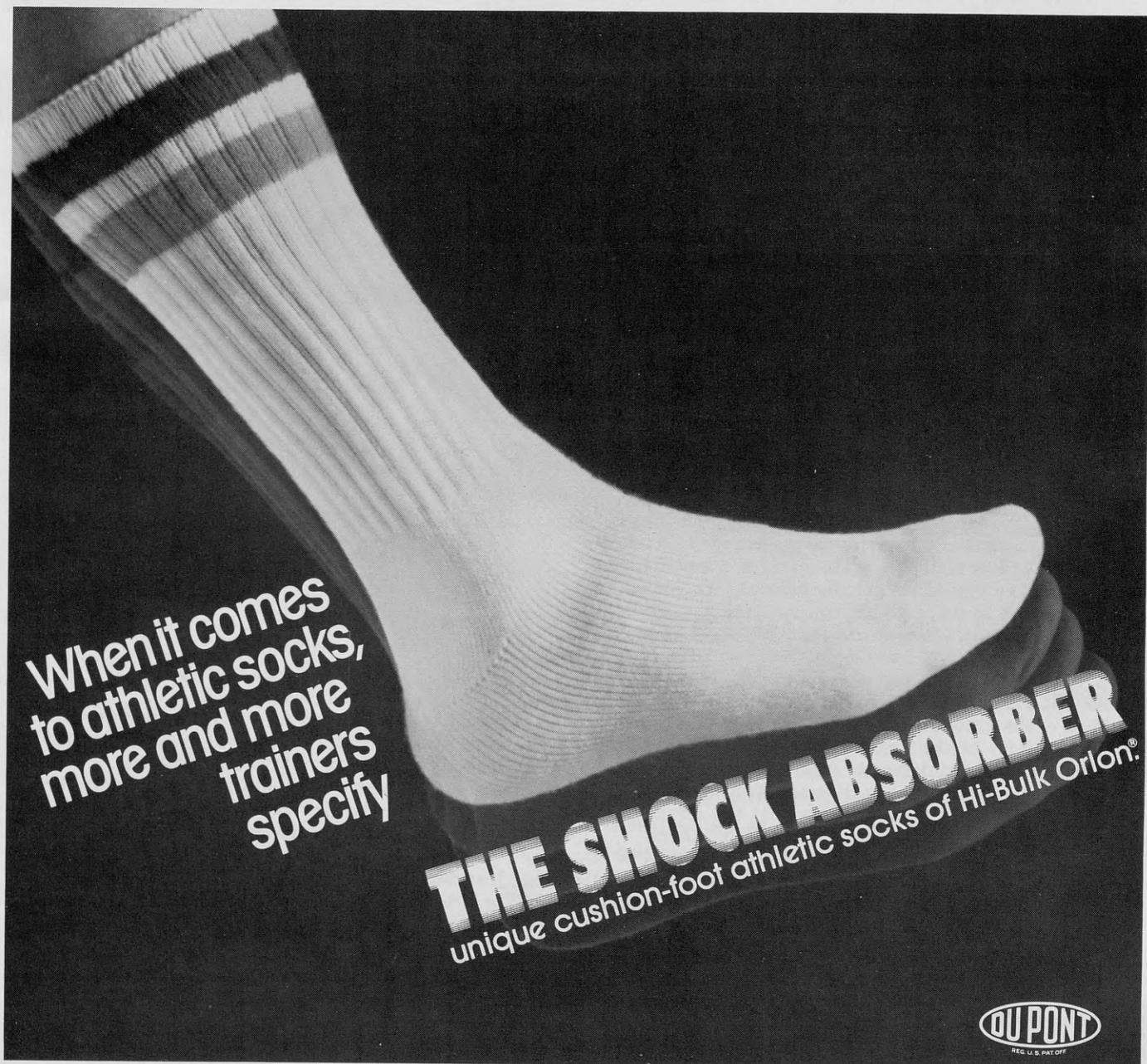
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# "An Athletic Trainer is A Protector, Healer, Dietician, and Friend."

— Reprinted from The Wall Street Journal, November 29, 1973



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by Rod Compton

# Editor's Comments

## FIRST SURVEY RESULTS

The results of the March 1974 Journal Survey proved to be quite interesting and informative. We received 400 plus answers, mostly certified trainers of all levels, high school and college student trainers.

The most outstanding fact is the extremely low number of team physicians and libraries that subscribe to **Athletic Training**. Far less than 30% of the involved school libraries and 15% of the physicians get the Journal. We should all make an effort to see that our libraries and physicians at least have the opportunity to obtain the voice of our professional organization!

A large percentage, approximately 50%, bought books due to the "Book Review" section.

Most of the answering readers were very satisfied with various sections of the Journal with only a few wanting changes. The "Board Minutes" and "Not for Men Only" were the only sections that were occasionally recommended to be dropped, but they were so few that the service they provide is far too great to justify eliminating them.

Our advertisers should be pleased in that over 90% of the readers are interested in the ads and 80% have bought or tried a new product due to the advertising in **Athletic Training**. That truly indicates that trainers do back up our advertisers.

The suggestions on what to add or drop in the content were so infrequent and varied that no new sections or deletions seem needed at this time. There was some mention of increasing the number of issues per year. However, this editor feels we would be far better off increasing the size and quality of the present quarterly issues rather than to go for frequency.

As an overview we were quite pleased with the number of answers, although we know the membership can do better, and that the membership is basically pleased with the present type of Journal. We will keep trying harder!

## HOPE FOR US ALL

Bobby Gunn's name had to be added to the original roster of that first NATA meeting of 1950 (page 86). Bobby was there, but his name did not appear on the registration list! It is rumored that the poor little fellow did not have enough money to pay the registration fee. Kind of reassuring isn't it!

## SURVEY #2

### YOU AND YOUR DISTRICT

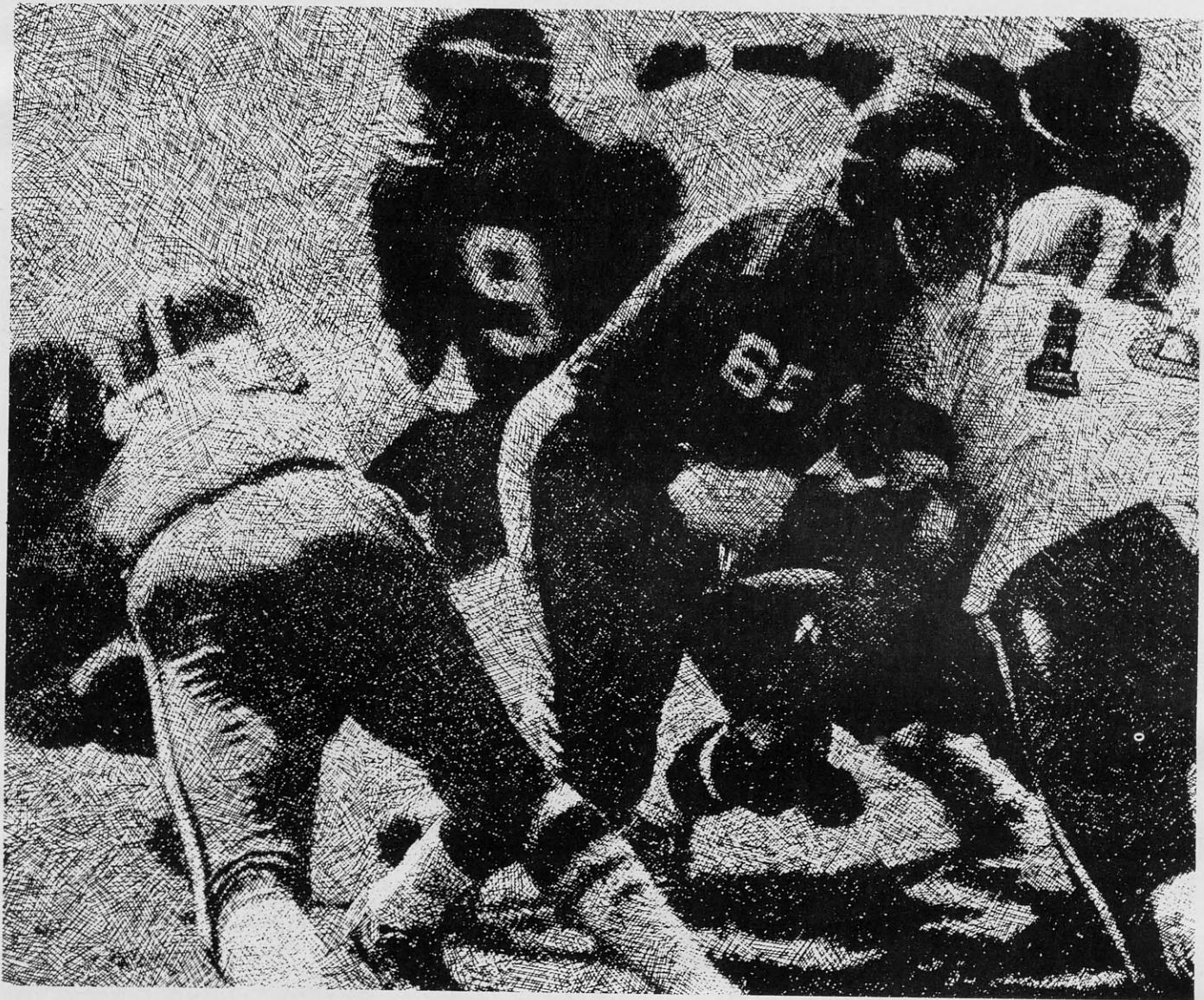
In order to provide some feedback to improve our organization the second Journal survey will cover various aspects of you and your role in your NATA District.

After looking over the replies your answers will be forwarded to your District Director for his use and information. Room for comment on the survey (page 75) has been left at the bottom of the page, so feel free to add any information that may be of interest to your director.

The directions for this survey are the same as last time—simple! Just tear out the page, answer the questions, fold it, tape or staple it, and mail it.

## HAPPY 25TH!

Here's wishing the NATA a very happy 25th Anniversary. As I am sure you all know by now, the official celebration will be at the site of the first NATA meeting, Kansas City! I hope all of you can make it to this great occasion, June 9-12, 1974. Maybe we can talk Otho into a silver streaking demonstration!



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# Calendar of Coming Events

JUNE						
						
<b>1974</b>						
S	M	T	W	T	F	S
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9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

JULY						
						
<b>1974</b>						
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21	22	23	24	25	26	27
28	29	30	31			

AUGUST						
						
<b>1974</b>						
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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

**June 9-12, 1974** - The Twenty-Fifth Anniversary National Athletic Trainers Association Convention will be held at the Crown Center Hotel, Kansas City, Missouri. For more information, contact Otho Davis, Executive Director, N.A.T.A., Philadelphia Eagles, Veterans Stadium, Broad Street and Pattison Avenue, Philadelphia, Pennsylvania 19148.

**June 8-9, 1974** - Fourth Annual Sports Medicine Conference, San Francisco Medical Society and San Francisco State University. James M. Glick, M.D., Conference Chairman, 2299 Post Street, San Francisco, California 94115.

**June 16-22, 1974** - The Seventh International WCPT Congress of the American Physical Therapy Association will be held at the Queen Elizabeth Hotel in Montreal, Canada. For information, write to the American Physical Therapy Association, 1156 15th Street, N.W., Washington, D.C. 20005.

**June 17-20, 1974** - The American Academy of Orthopedic Surgeons will offer a basic course in emergency care. The course will be held in Boston, Massachusetts. For further information, contact Thomas J. Berry, Jr., M.D., 49 Pearl Street, Brockton, Massachusetts 02401.

**June 17-21, 1974** - Cramer's and Indiana State University will hold a workshop for women interested in athletic training. For more information, contact Holly Wilson, Indiana State University, Terre Haute, Indiana 47809.

**June 17-30, 1974** - The University of Colorado will offer a two-hour graduate credit course entitled "Psychology of Sport." For more information, contact Dr. Dale Mood, Department of Physical Education, University of Colorado, Boulder, Colorado 80302.

**June 24-27, 1974** - Cramer's and William Penn College will hold a workshop for student trainers. Contact Ron Rendleman, William Penn College, Oskaloosa, Iowa, or Cramer Products for more information.

**June 24-28, 1974** - Cramer's and Madison College will sponsor a workshop in athletic training for women. Write Dr. Leotus Morrison, Madison College, Harrisonburg, Virginia 22801, for more information.

**June 27-29, 1974** - "The Art and Science of Sports Medicine 1974" will be held at the University of Virginia. For details contact Clifford E. Brubaker, Ph.D.,

University of Virginia, Memorial Gym, Emmet St., Charlottesville, Va. 22903.

**June 24-July 3, 1974** - The School of Physical Education, West Virginia University, will sponsor two one-week workshops. The June 24-27 workshop is open to all high school student trainers. The June 28-July 3 workshop is open only to graduate students. For information, contact Charles Yost, School of Physical Education, West Virginia University, Morgantown, West Virginia 26506.

**June 30-July 3, 1974** - Cramer's and California State Polytechnic University will sponsor a student trainer workshop. For further information, contact Robert Hand, California State Polytechnic University, Pomona, California, or Cramer Products.

**July 7-10, 1974** - Cramer's and Southwest Texas State University will hold a workshop for student trainers. Contact Bobby Patton, Southwest Texas State University, San Marcos, Texas, or Cramer Products for more information.

**July 8-11, 1974** - Cramer's and Clemson University will conduct a workshop for student trainers. Contact Fred Hoover, Clemson University, Clemson, South Carolina, or Cramer Products.

**July 8-11, 1974** - Cramer's and Ohio State University will hold a student trainer workshop. For information, contact Billy Hill or Mike Bordner, Ohio State University, Columbus, Ohio.

**July 8-11, 1974** - Cramer's and West Texas State University will co-sponsor a student trainer workshop. For further information, contact Lynn Laird, West Texas State University, Canyon, Texas, or Cramer Products.

**July 14-16, 1974** - "Basic Science of Sports Medicine" is the title of a post-graduate course offered by the American Academy of Orthopedic Surgeons that will be presented at the Sheraton Hotel, Philadelphia, Pennsylvania. Contact James E. Nixon, M.D., 419 South 19th Street, Philadelphia, Pennsylvania 19146.

**July 15-18, 1974** - Cramer's and California State University San Jose will hold a 3-day workshop for student trainers. For more information, contact Jim Welsh, California State University San Jose, San Jose, California, or Cramer Products.

**June 23-28, 1974** - The Fifth Annual Miami University High School Student Athletic Trainers Workshop will be

held in Oxford, Ohio. For details contact Ken Wolfert, Miller Hall, Miami University, Oxford, Ohio 45056.

**July 15-18, 1974** - Cramer's and Eastern Illinois University will co-sponsor a workshop for student trainers. Contact Dennis Aten, Eastern Illinois University, Charleston, Illinois, or Cramer Products.

**July 15-18, 1974** - Cramer's and Kansas State Teachers College will hold a "doing workshop" for student trainers. For more information, contact John Baxter, Kansas State Teachers College, Emporia, Kansas, or Cramer Products.

**July 15-19, 1974** - The American Corrective Therapy Association will hold its National Convention in Albuquerque, New Mexico, at the Airport Marina Hotel. For more information, contact Norman Roche, 9301 Arvilla, N.E., Albuquerque, New Mexico 87111.

**July 15-19, 1974** - Cramer's and LaSalle College will sponsor a workshop in athletic training for women. Contact Mary O'Connor, LaSalle College, 20th Street and Olney Avenue, Philadelphia, Pennsylvania 19141.

**July 15-26, 1974** - The 1974 All Sports Conference will be conducted at the University of Colorado. Clinics being offered are: Swimming and Diving, July 15-19; Track and Field, July 15-19; Tennis, July 22-26; and Gymnastics, July 22-26. For further information, contact the Bureau of Conferences and Institutes, Academy 217, 970 Aurora Avenue, University of Colorado, Boulder, Colorado 80302.

**July 22-24, 1974** - The American Academy of Orthopedic Surgeons will present a postgraduate course entitled "Upper Extremity in Sports." The course will be given at the University of Oregon, Eugene, Oregon. For further information, contact Dr. Robert L. Larson, 750 East 11th Avenue, Eugene, Oregon 97401.

**July 22-25, 1974** - Cramer's and University of Alabama will have a 3-day workshop for student trainers. For more information, contact Jim Goostree, University of Alabama, University, Alabama.

**July 22-25, 1974** - Cramer's and Eastern Michigan University will hold a student trainer workshop. For more information, contact Ron Venis, Eastern Michigan University, Ypsilanti, Michigan, or Cramer Products.

**July 22-25, 1974** - Cramer's and

Northeast Louisiana State University will co-sponsor a workshop for student trainers. For further information, write Charlie Martin, Northeast Louisiana State University, Monroe, Louisiana.

**July 22-26, 1974** - Cramer's and California State University are holding a workshop for women interested in athletic training. Contact Dee Schraffa, California State University, Hayward, California.

**July 22-August 2, 1974** - The University of Colorado will be offering two two-hour graduate courses: "Applications of Science to Coaching Men and Women" and "Administration of Aquatics." For more information, contact Dr. Dale Mood, Department of Physical Education, University of Colorado, Boulder, Colorado 80302.

**July 28-August 3, 1974** - The Piedmont Student Trainers Camp will be held at Camp Hanes YMCA Camp near Winston-Salem, N.C. It is held in conjunction with the Piedmont Football Camp. For further details contact Rod Compton, Sports Medicine Division, East Carolina University, Greenville, N.C. 27834.

**July 28-August 3, 1974** - Cramer's and Western Michigan University will co-sponsor an athletic trainer workshop for women. Contact Billye Ann Cheatum, Western Michigan University, Kalamazoo, Michigan 49001.

**July 29-August 1, 1974** - Cramer's and Northeastern University-Boston Bouve College will present a "doing workshop" for student trainers. For further information, contact Koko Kassabian, Northeastern University, Boston, Massachusetts, or Cramer Products.

**August 5-8, 1974** - Cramer's and Mankato State College will co-sponsor a 3-day student trainer workshop. Contact Gordon Graham, Mankato State College, Mankato, Minnesota, or Cramer Products for more information.

**August 5-8, 1974** - Cramer's and West Chester State College will hold a student trainer workshop. For further information, contact Phil Donley, West Chester State College, West Chester, Pennsylvania, or Cramer Products.

**August 5-8, 1974** - Cramer's and The College of William and Mary will be presenting a "doing workshop" for student trainers. Contact Ed Christman, The College of William and Mary, Williamsburg, Virginia.

**August 5-9, 1974** - Cramer's and

Western Illinois University will co-sponsor a women athletic trainer workshop. For more information, contact Elizabeth Chapman, Western Illinois University, Macomb, Illinois 61455.

**August 8-9, 1974** - The Germantown Academy will present its 8th annual symposium on athletic medicine at Fort Washington, Pennsylvania. Contact David G. Moyer, M.D., Director, Germantown Academy, Fort Washington, Pennsylvania 19034, for more information.

**August 12-15, 1974** - Cramer's and Colorado State University will hold a 3-day student trainer workshop. Contact Frank Egenhoff, Colorado State University, Fort Collins, Colorado, or Cramer Products for further information.

**August 12-16, 1974** - Cramer's and The University of Wisconsin will co-sponsor a workshop for women interested in athletic training. For further information, contact Helen Briwa, University of Wisconsin, Oshkosh, Wisconsin 54901.

**August 14-17, 1974** - A refresher course in emergency care will be given by the American Academy of Orthopedic Surgeons in Washington, D.C. For more information, contact Dr. George W. Hyatt, 3800 Reservoir Road, Washington, D.C. 20007.

**August 17-21, 1974** - Cramer's, University of Washington, and Highline School District will present a 3-day student trainer workshop. Contact Bud Miller, University of Washington, Seattle, Washington, or Cramer Products.

**September 9-11, 1974** - A program entitled "Early Care of the Injured Athlete" sponsored by the American Academy of Orthopedic Surgeons will be presented at the Townsley Center for Continuing Education in Ann Arbor, Michigan. Contact Gerald O'Connor, M.D., 326 North Ingalls Street, Ann Arbor, Michigan 48104.

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



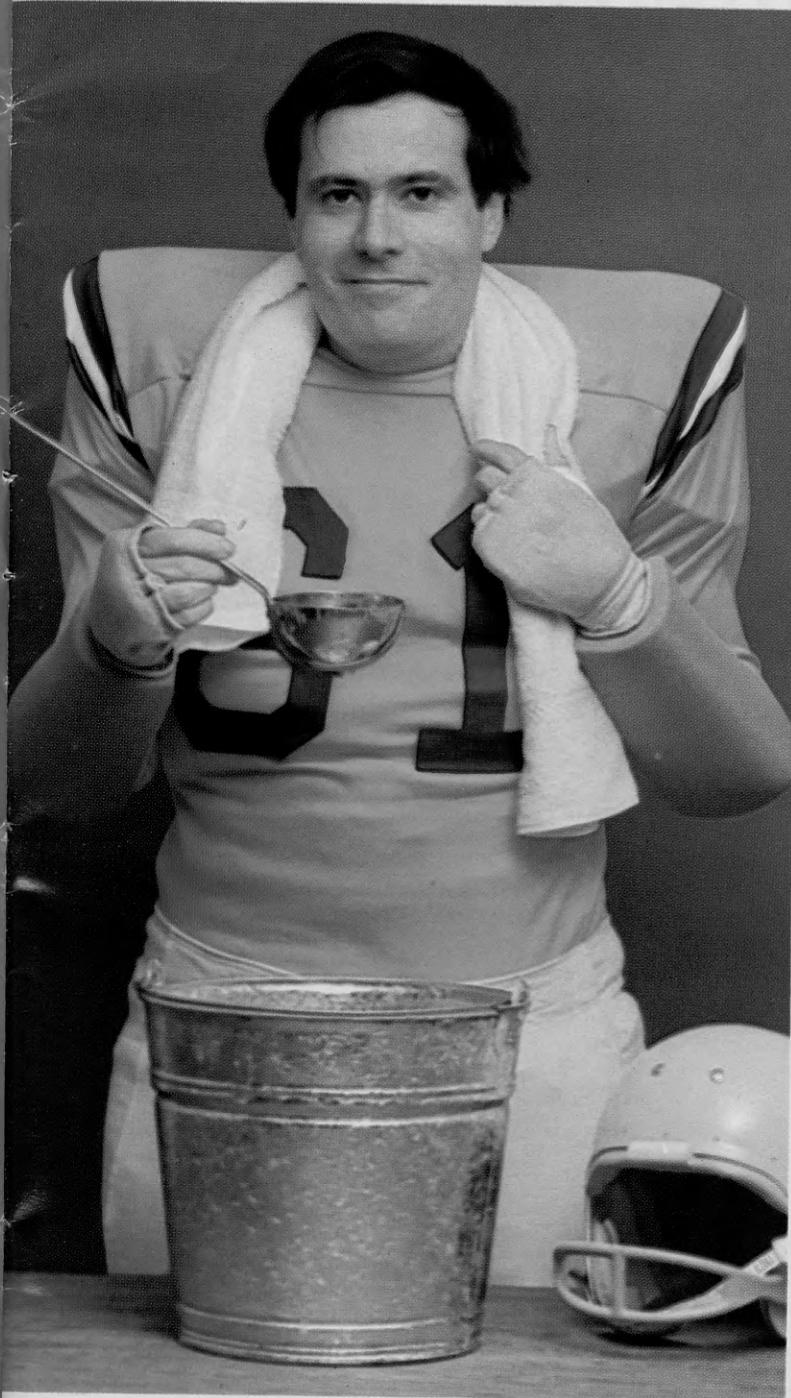
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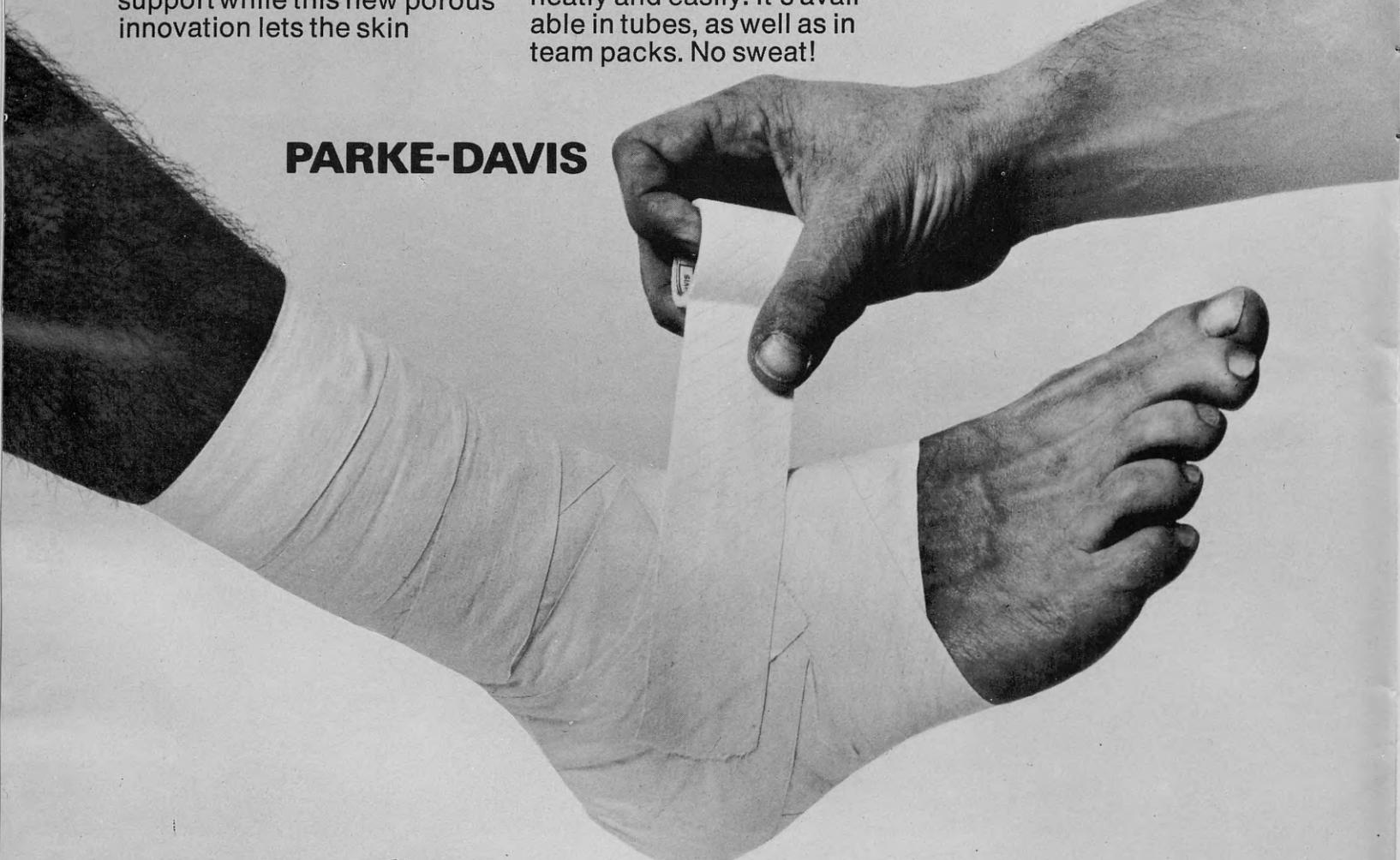
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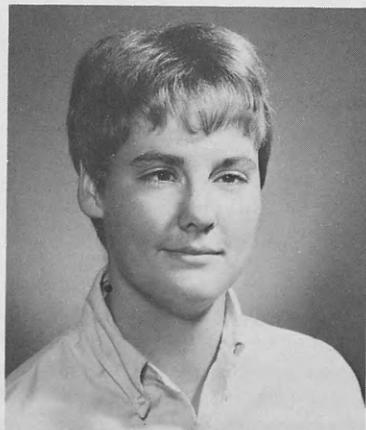
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# NOT FOR MEN ONLY



by Holly Wilson  
Certified Athletic Trainer

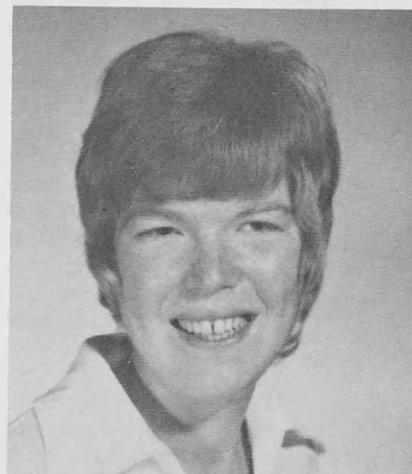
In the few years that I have been a member of the profession, the National Athletic Trainers Association has made tremendous strides in the preparation of men to care for the welfare of the male athlete. Recently similar advances have been made by women who desire to provide the same quality care for the injured female athlete. The impetus was, in part, the rapid growth and development of interscholastic and intercollegiate athletics for girls and women, and perhaps, a change in society's attitude toward the female athlete.

Evidence of the increased interest of women in athletic training can be shown by the recent influx of articles concerning the need for women trainers, the increasing number of DGWS-Cramer workshops for women, the inclusion of training sessions for women at many conventions, the increase in the number of NATA approved curriculums that now accept women, and finally the large number of women who have joined the NATA.

Rather than the typical column, I would like to focus on the women who are members of the Ad Hoc Committee for Women in Athletic Training. Besides their biographical information, some of the trainers have included highlights of their careers as well as some hints for women interested in entering the profession.

**Marge Albohm received her Bachelors Degree in physical education from Valparaiso University, Valparaiso, Indiana in 1972. She earned her Masters Degree in physical education with a specialization in athletic training at Indiana State in 1973. She has been active in the profession, writing articles and conducting workshops. Marge is currently employed as a physical education instructor and trainer at Concordia Teachers College in River Forest, Illinois. In January, Marge passed the NATA's Certification to become one of the few certified women trainers in the United States.**

The area of the prevention and care of athletic injuries became of interest to me during my collegiate athletic experience. As a result of injuries sustained to myself and to fellow teammates it became apparent that the health and welfare of female athletes needed to be considered to a greater degree. I became aware of the important position athletic training held in the men's athletic programs and realized that women were neglecting a vital phase of their programs. I became interested in and intrigued with the medical aspects of sport and wanted to pursue this area. I therefore entered the field of athletic training to pursue the area of sports medicine and because I felt women's athletics deserved trained professional help to



better care for their athletes and to benefit the health and safety of the individual.

Although it is difficult to cite one particular highlight of my training career I feel one of the most rewarding experiences has been the interest and responsiveness shown by female students and athletes to the field of athletic training. It has been an exciting experience to initiate and establish a training program with the full cooperation of both men and women coaches, working as a team to provide the best possible care for the athletes.

In my opinion, anyone interested in the field of athletic training should take full advantage of all the possible experience one encounters. I feel it is essential to obtain a sound educational

background in athletic training and I believe the curriculum program is invaluable in this respect. It is also important to realize that with any new program problems are unavoidable, but the need for women athletic trainers is so great that we must pursue our goals with diplomacy and determination, for the welfare of our athletes is at stake.

Marge Albohm



**Linda Treadway, better known as "Twilda" to the athletes at West Chester State, recently passed her certification examination and was written up in a recent issue of Sports Trail. Like so many other women, Linda is obtaining her training background under a graduate assistantship.**

I became interested in athletic training as an undergraduate major in health and physical education at West Chester State College. The required course of first aid and athletic training started it all. From there I took additional courses which led right into the NATA approved curriculum just starting at West Chester. I truly enjoy sports, participating all seasons through high school and college. With a medical flair that runs through me and my love for sports, it seemed quite natural that I should go into athletic training.

For the past year and a half I have been working as a graduate assistant at West Chester. While working on my master's degree, I teach first aid and athletic training courses and also serve as assistant athletic trainer. I have been given the opportunity of covering men's sports as well as those for the women. Consequently I have been seen at pre-season football and soccer camp, traveling with the wrestling team, and sitting in the dugout with the baseball team. Working with both men and women provides a much wider range of experiences in injuries, management, treatment, and rehabilitation. I would highly recommend a

co-ed training room for most situations at the high school and college level if facilities so permit. It is an excellent learning situation for both the female and male athletic trainer.

I was quite honored when I was asked to cover the U.S. Women's Track and Field Olympic Trials the summer of '72. Upon arriving at the scene I was quite surprised to hear they had trouble finding women qualified for the job. No problem finding men; but not too many available women trainers. Athletic training is definitely an open field for women. The way athletics for women is on the rise, the cry for certified female athletic trainers is becoming ever stronger. But not just any woman will do. It requires someone who believes in the values of athletics, can communicate and work with people, is willing to put in some long hard hours, is level headed, and is not easily upset. The hours may be long at times, but the rewards are many.

Linda Treadway

**Sue Schneider has the distinction of being perhaps the only woman trainer to tape a football player's ankle on national television. She is working at Michigan State as a graduate assistant in athletic training.**

This is the first year for the university to have a female trainer and I feel proud to hold the position. Now the female athlete has a trainer of her own sex to treat and care for her injuries and is able to relate with her any problems that may arise.

I first became interested in athletic training through a class offered at Central Michigan University which led to my position as a student trainer. I worked for two years with both women's and men's programs and realized that this was my career. Upon graduating in May of 1973, I was offered an assistantship at Michigan State University in athletic training. Eventually this will lead to my masters



in physical education.

Working as an athletic trainer fills my need to be with both people and sports. I feel that I have more to offer in this area because it is a relatively new field and not much has been done in the past for the care of female athletes.

My most interesting experience as an athletic trainer has been working with the MSU football team last fall. I was able to work with these athletes and see what happens "behind the scene". This was valuable experience in increasing my knowledge as a trainer.

Women interested in athletic training should not be discouraged when first starting into the field. Determination and desire are two characteristics one should possess when contemplating the career. The first few years are the toughest, but the little joys that accompany the job make it all worthwhile.

Sue Schneider



**Gail Weldon works as the assistant trainer for the Women's Physical Education Department at Indiana State where she is completing her Masters Degree. Gail was awarded an assistantship in training because of her undergraduate background. Many schools are now following ISU's example of offering an assistantship to a woman with a background in athletic training.**

I became interested in athletic training as an undergraduate at Northeastern Illinois University. My freshman year I fell into the role of a student trainer because my teammates needed someone to care for their injuries. During my second year Dick Hoover, the former trainer at Northwestern, was a guest lecturer. After talking with Dick there was no question in my mind that athletic training was the field for me. I worked as a trainer for the men and women at Northeastern until I graduated in 1973.

My highlight in training would have to be traveling with 'Northeastern's volleyball team to the AIAW National Volleyball Tournament at Brigham Young University in Provo, Utah.

Training satisfies my need to work in sports and my love for working with people. I would tell any woman interested in training not to be discouraged, that progress is slow but new opportunities will certainly arise with the growth of women's sports. Obtain a good background in anatomy, physiology, and kinesiology. Also, I would suggest attending a school with an athletic training curriculum and get as much experience working with the athletes as possible.

Gail Weldon

**Kaye Cosby is one of the ten women graduate students enrolled in the athletic training specialization at Indiana State. She graduated from the University of Texas in 1968 and has taught physical education to high school girls prior to coming to ISU.**

I went into athletic training because I saw a need in Texas for women physical educators to be better prepared for coaching through their college curriculums and clinics. I hope to eventually be a part of this "preparation". Texas high school girls deserve

good coaching to prevent many injuries and proper care of an injury when it does occur.

There has been no spectacular highlight in my brief career as a student trainer. I realize I still have a great



deal to learn, and I hope I never become so narrow in my thinking and my techniques in training that I cease to learn.

Kaye Cosby

**Linda Hammett has had a very interesting and unique background as an athletic trainer. She served as the men's and women's trainer for the**



**University of Montevallo in Alabama before working as a trainer for the Kansas City Parks and Recreation Department. She is currently employed by the Lake Braddock Secondary School System in Burke, Virginia. Linda received her Bachelors Degree from Central Missouri State University and her Masters from Texas Women's University.**

The highlights of her career include serving as the trainer for the Olympic Development Camp in Volleyball that was held in Houston, Texas and the 1973 Tour of the Quebec National Volleyball Team.

(Con't on p.82)

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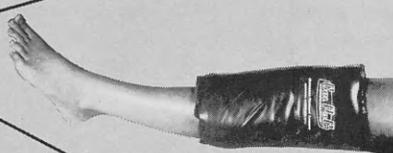
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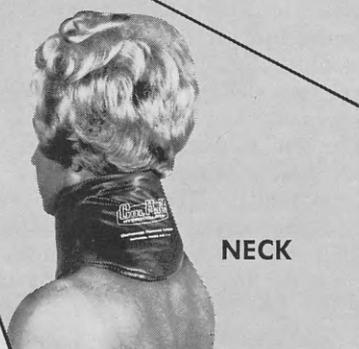
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**KNEE-THIGH**



**ANKLE-FOOT**



**NECK**

# THE STUDENT TRAINERS' CORNER



By Ray Baggett  
Indiana State University

In this issue we have articles written by Richard J. Stebbins, a former athletic trainer before completing his Physical Education Doctorate and presently Graduate Coordinator of the School of H.P.E.R. at Indiana State University and Ellis Hardwick, a Physical Therapist working on a Graduate Specialization in Athletic Training at Indiana State University.

## SUMMER VACATION—A TRIP INTO THE FUTURE?

by Richard J. Stebbins, P.E.D.  
Professor of Physical Education  
Indiana State University

As summer vacation begins and the school year lies behind you, how are you going to fill the void? Have you considered a summer occupation which could help you professionally, or are you going to put your profession in the closet like last year's sweater to be pulled out again in the fall when the chill gets in the air?

Are there summer jobs which can give you additional insights into the profession? Is it possible that these medically oriented jobs will better prepare you to be a marketable item yourself when the time comes? Think about it, to paraphrase an old saying "A job is where preparation meets opportunity." The better the preparation the better the opportunity. The following list is only a sample of the types of activities you might inquire into.

1. **Summer Camps**—Particularly those

of a special nature such as handicapped, sports, or special activity camps. A good opportunity to put your skill to work.

**Nature of work:** Counselor, special area director, nurses aid, physical therapist helper, correctional therapist helper, recreational therapist, or first aid technician.

2. **Medical Laboratory Assistant**  
Work under the direct supervision of medical technologist or other qualified certified medical personnel.

**Nature of work:** Perform routine laboratory procedures in bacteriology, blood banking, chemistry, hematology, parasitology, serology, and urinalysis.

**Employment:** In hospitals, clinics, physician's offices.

**Qualifications:** Interest and background in science plus strong sense of duty and responsibility.

3. **Corrective Therapist Helper**—Medically oriented physical education and athletic training.

**Nature of work:** Application of the principles, tools, techniques, and the psychology learned in the classroom. Tasks are primarily designed by a physician to accomplish prescribed objectives for the patient.

**Employment:** Government, public and private rehabilitation clinics, hospitals, private schools, colleges and universities, special schools and camps for the handicapped, nursing and convalescent homes, recreational programs for the handicapped.

**Qualifications:** Patient, tactful, possess a sense of humor, and the ability to work with others.

4. **Home Health Aid**—Provide assistance in meeting certain at home needs.

**Nature of work:** Works under the professional supervision of public health nurse, physical therapist, occupational therapist or social worker—the aid meets the needs of people in their private homes.

**Qualifications:** Mature, sense of humor, ability to work with people, emotionally stable.

5. **Nurses Aid**—Shares, to some extent, in actual care of patients.

**Nature of work:** May answer patient's calls, help with meals and bathing, adjust beds, or any number of simple but important tasks for patient's comfort.

**Employment:** Hospital, clinics, and nursing homes.

**Qualifications:** Must have interest and aptitude for caring for the sick.

6. **Orderly**—Work under the direction of professional nurses.

**Employment:** Hospitals, rehabilitation centers, clinics, schools, military hospitals, handicapped persons camps.

**Qualifications:** Good physical shape and emotionally stable. Must be patient, considerate and have a desire to help others.

This list only scratches the surface. Lots of opportunities of this nature exist which the resourceful student trainer can locate. The primary objective is to gear your vacation into a profitable experience, not a vocational void.

**Nature of work:** Generally do the heavier work in the nursing unit of a hospital.

**Employment:** Hospitals, clinics, nursing homes.

**Qualifications:** Respect for people.

7. **Physical Therapist Assistant**—Under the direction of registered physical therapists, assists in re-

gaining physical function.

**Nature of work:** Through the use of massage, therapeutic exercise and physical agents such as cold, heat, light, water and electricity, assists those suffering from illness and disability, regain physical function. Treatment conditions are under the prescription of a physician.

### PHYSICAL THERAPIST-ATHLETIC TRAINING COMBINATION

by Ellis Hardwick  
Edited by: Jerry Hodge

The Physical Therapist-Athletic Training combination has many advantages. A person with these qualifications is a multi-professional and is a member of the paramedical profession--Physical Therapy. In many instances, he has teacher certification qualifications, he is a member of the teaching profession and, being a Physical Therapist-Trainer, he is also a member of the Athletic Training profession.

Physical Therapy and Athletic Training aid each other. The fundamental principles are the same; namely physiological aspects of body systems in regard to normal function and also their responses to abnormal situations as when heat or cold are used.

Anatomy is another area in which Physical Therapy and Athletic Training complement each other.

Generally speaking, the basic principles of rehabilitation of the injured are the same. However, Physical Therapy in a general hospital type setting is usually carried on at a slower pace than the rehabilitation of the injured athlete, primarily because the average age of the hospital patient is much older than that of the athlete. The young body has more resilience, enabling it to bounce back faster and heal more quickly than the older patient. Also, the athlete is usually more motivated to get well and, therefore, his rehabilitation can be accomplished more quickly.

Another area in which the Physical Therapist-Trainer has the advantage is in the area of employment. Many universities want Trainers with a Physical Therapy background because of their additional training and experience in the paramedical area. Some of the employment possibilities are:

1. Full time athletic training responsibilities of a college or university.
2. Teach physical education activity classes (M.S. Degree) in a college or university in the morning and have athletic training responsibilities

ties in the afternoons.

3. Work as a Physical Therapist in the university student health center in the mornings and with athletics in the afternoons.
4. Perhaps the college or university is small and/or funds are inadequate for a full time trainer or P.E. teacher-trainer combination. The individual could set up a private physical therapy practice or be on half-time employment with a hospital or group of doctors in the mornings and work on a half-time athletic training basis in the afternoon.
5. Teach on the high school level and take care of their athletic teams.

Should one be employed apart from Physical Therapy during the school year, the 2-3 months free would allow him an opportunity to make extra money by engaging in Physical Therapy. These are just some of the options.

I was told several years ago that the trend for Athletic Trainers was to also be a qualified Physical Therapist. This trend still seems to hold true. I believe that with a combination such as this, one can have a greater sense of financial security and in some cases may be able to name his own price.



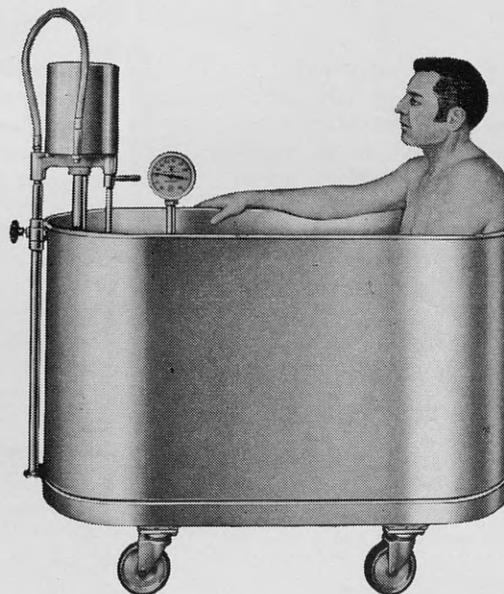
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## **SPORTS MEDICINE GETS PUBLICITY NEWSWEEK**

Newsweek discussed sports medicine in several issues in 1973. According to one issue, Dr. James Nicholas has opened an Institute of Sports Medicine and Athletic Trauma at Lenox Hill Hospital in New York. Nicholas says that sports medicine is a health discipline that can be applied to almost every American—the toddler on his tricycle, the “muscle beach Adonis” with his barbells, and the grandmother who needs a mild form of activity to help her recover from a fractured hip. According to Nicholas, sports medicine “is the science that is concerned with man’s leisure time. It doesn’t just involve the stadia and pro sports; it involves the sun, air, mountains, water, surf, and ground—and all the activities that go with them. Our duty is to allow people to have recreation.”

## **WALL STREET JOURNAL**

Pinky Newell’s development and activity in Purdue’s athletic training program was the subject in a recent lengthy article in the Wall Street Journal. Although Purdue’s athletic training services could be classified more as a model program than a typical program, the article did enlighten the public to the services, involvement, cost, and value of athletic training.

I don’t know what connection Pinky has with Wall Street, but congratulations anyway.

## **TENNIS TOE**

Tennis Toe occurs when a player stops short—(I.E. after dashing to the net)—and jams his large toes hard against the front of his sneakers. The result is the rupture of small blood vessels beneath the toenail, producing discoloration and, in some cases, swelling and severe pain. The risk of tennis toe is greatest during play on cement or other hard-surface courts which, unlike

slide during sudden stops.

While tennis toe may be as common as tennis elbow these days, it is fortunately in no way as disabling; pain usually goes away after a few days off the court. The best ways to avoid even that inconvenience, the experts agree, are to play on grass or clay surfaces, if possible, and to buy shoes with plenty of room for the big toes.

## **GRADED EXERCISE TESTING**

Some interesting points regarding exercise testing were brought out by Dr.’s Cummings and Faulkner in A.C.S.M. News.

1. Graded exercise testing is potentially dangerous for some participants.
2. With the present state of the art, no one can recognize who are the high risk participants and only the physician has the legal and ethical responsibility to hazard a guess as to who they are and are not.
3. Well trained exercise technicians and exercise leaders may administer screening tests, graded exercise tests, a resuscitation procedure as well as or even better than a physician, but only under the supervision of a physician.
4. For the non-physician it is foolhardy to risk one’s financial and professional security in administering graded exercise tests even at odds of 1:20,000.
5. For the protection of supervisory para-medical personnel, physicians must bear the responsibility for the security of the individual taking a graded exercise test, which is, after all, being used as a diagnostic test.

## **SCHOOL-COLLEGE ATHLETES MORE ACTIVE AS ADULTS**

More than two-thirds of the adults who participated in two or more sports in school and/or college are exercising now, while fewer than one-half of those

who did not participate in sports are exercising. The former athletes’ greater liking for exercise is especially pronounced in the more vigorous activities. Proportionately, twice as many of the athletes ride bicycles and do calisthenics, and three times as many jog and swim for exercise.

The persons least likely to be exercising now are those who did not have physical education in school or college. Only 6% of them ride bicycles, only 4% swim, and only 2% jog. Probably one reason for these extremely low levels of participation is that the men and women who did not have physical education tend to be older.

Nearly one-half of the men and women who exercise do so for reasons of health. Among their most frequent comments are, “It’s good for my heart,” and, “I can breathe better.” One-fourth of those who exercise do so to lose weight and about the same number do so for enjoyment and relaxation. Men are somewhat more likely than women to exercise for reasons of health, or because they enjoy it, while women are twice as likely to exercise to lose weight.

## **MOUHPIECE USE LOWERS TEAMS’ DENTAL SURGERY**

The mandatory use of mouthpieces for football players reduced dental surgical cases for a group of college athletes by 71 percent in one year.

Dr. Donald Cooper of Oklahoma State University told a news conference at the NCAA convention that in a group including the major conferences there were 169 dental surgical cases in 1972 before the rule and only 66 during the 1973 season when mouthpieces were mandatory equipment.

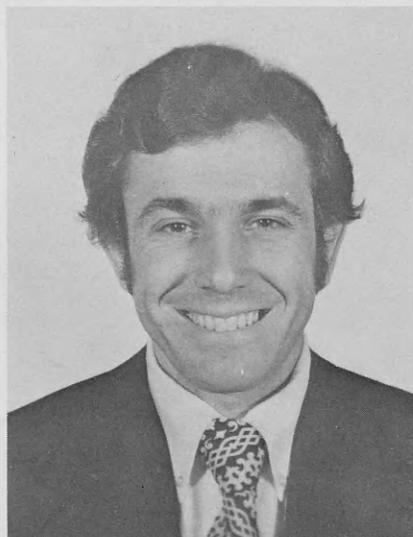
“That, of course, does not cover all such injuries in the United States,” Cooper said, “but it is for the same group of schools. And it shows that the mouthpiece is one of the best pieces of equipment there is for doing the job it is supposed to do.”





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# A Review of Protein Supplements as Ergogenic Aids



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

*Dr. Louis Osternig earned his Bachelor and Master of Science degrees in physical education from California State University at Hayward in 1965 and 1967, respectively. In 1971, he received his Doctor of Philosophy degree from the University of Oregon. He is currently serving as athletic trainer and assistant professor in physical education at the University of Oregon.*

Athletic trainers are frequently asked to comment on the advocacy of certain nutritional supplements for athletes. This is understandable since food supplement advertisements abound and have, in many cases, the endorsement of various athletes, coaches and athletic trainers.

The oft used advertising expression "super food for super athletes" is one which reinforces the notion that athletes are somehow different from others in their nutritional requirements and that supplements are a must if one is to compete to his or her maximum potential.

Protein supplements, in particular, have been widely advocated as ergogenic aids and in some cases their consumption by athletes has been encouraged quite indiscriminantly.

Darden (4) interviewed 27 Olympic athletes in Munich as to their dietary habits in training. Less than half of the athletes questioned felt that a diet of well balanced meals alone, without supplements, would provide them with adequate energy and stamina to compete.

Apparently, there is some confusion as to what are the true protein needs of stellar athletes. The individual comments of the participants interviewed in the above survey, ranged from statements of not needing nor taking special foods or supplements to claims of the need for and intake of a variety of types of protein additives.

With such a wide variance of opinion among this country's elite athletes as to the need for extra dietary protein in order to perform maximally, it seemed necessary to review what researchers have had to say about the protein requirements of active sports participants.

#### **The Tradition Behind Protein Needs**

Protein supplements in the form of extra meat have been traditional for

many years in spite of evidence indicating that exercise does not increase, substantially, the body's need for protein (5), (9), (13). According to Cooper (3), this tradition started in Greece about 450 B.C. and was based on the idea that since muscle is used in sport it must be replenished by eating muscle i.e., meat-protein.

Particularly indicative of this type of philosophy is the usual pregame meal consisting of a large steak. This philosophy seems, in many cases, to be so ingrained in athletes' thinking that the mere suggestion of a change in menu is met with rebuff.

#### Protein in the Pregame Meal

The practice of consuming large amounts of protein in pregame meals has been questioned by Mayer and Bullen (8). They advised that the protein content of this meal should be reduced in order to minimize the amount of fixed acid to be excreted by the kidneys. Similarly, Cooper (3) advised the avoidance of protein in a pregame meal. He suggested that the digestion and metabolism of protein produces a residue of ammonium acid which can be excreted only by the kidneys. During strenuous exercise kidney function is reduced and the excretion of this acid is impaired.

#### Exercise and Protein Metabolism

The body's need for protein does not appear to be increased as a result of strenuous exercise. Steel (13) reported that the requirement for protein is not increased by exercise and that increased protein intake does not alter performance significantly at the time of competition. In a study involving cross country skiers, Hedman (6) found no noticeable changes in nitrogen (a biproduct of protein metabolism) excretion among skiers who raced 22-25 miles in one day as compared to resting individuals. Fowler (5), in citing Nagamine (10) and Van Itallie (14) concluded that protein is not metabolized in increased amounts during strenuous exercise.

Mickelsen (9) summarized much of the work done in protein needs for athletes by stating: "For many years, the evidence has been conclusive that athletes require no more dietary protein, even during strenuous training, than sedentary individuals. Although the training period is associated with the formation of additional muscle tissue, an ordinary diet provides sufficient extra protein for that purpose."

#### Protein Supplements and Strength Development

The idea that protein supplements may aid in increasing strength and/or

muscle mass has been a commonly held concept by many involved in athletics. However, there is evidence to the contrary. Studies by Nelson (11) and Rasch and Pierson (12) have shown that when additional protein is added to the diet of football players or normal males, no increases were found in performances of motor tests, strength tests, in weight gains or girth. Astrand (1) reported that the belief that extra protein stimulates maximum performance or muscle growth is a myth. He states: "As far as we know, a well balanced diet of normal foods will provide all the protein an athlete needs for peak performance". Bergstrom and Hultman (2) in a study on nutrition and sports performance, found no indication that excessive protein intake is of any additional value in building up the muscle mass.

#### Conclusions

Protein is, of course, an essential nutrient in the diet. However, the premises that vigorous activity increases the body's need for protein and that increases in strength can be attributed to excessive protein intake do not appear to be substantiated in the literature. A good rule of thumb for protein maintenance according to Darden (4) is one gram of protein per day for each kilogram of body weight.

As in any field of study, further research in the area of nutrition and the athlete is needed. Up to this point, however, protein supplements in the diet have not been verified as aids (other than psychological) to improving sports performance.

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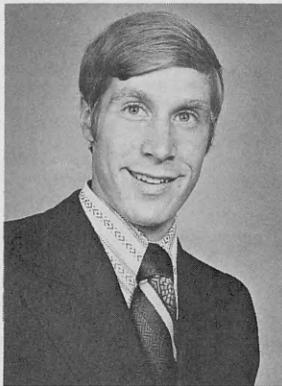
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by Ed Christman  
Certified Athletic Trainer

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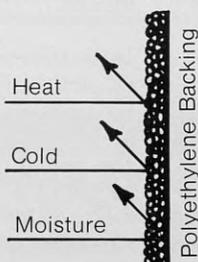


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# THE IMPORTANCE of

The development of skill in a particular sport serves only one purpose . . . it enables you to use the strength of your muscles with greater efficiency. So skill is certainly important. But in the end, it is the muscles that perform the work.

Cardiovascular "condition" is also important . . . because it enables you to use the strength of your muscles without being limited by the heart and lungs. But it is the muscles that perform the work.

If an individual is blessed with good bodily proportions, he has a distinct advantage . . . because his muscles are given the assistance of favorable leverage, can work with greater than average efficiency. But the muscles still perform the work.

All really outstanding athletes have superior neurological efficiency. In a maximum attempt effort, they are able to make use of a far higher than average percentage of their muscular mass. Their muscles are no better (nor worse) than the muscles of other men . . . they simply have the ability to utilize a muscle more efficiently. But still, it is their muscles that perform the work.

All of the above four factors are important to an athlete, in any sport . . . (1) skill . . . (2) "condition" . . . (3) favorable bodily proportions . . . (4) superior neurological efficiency. Lacking any one of those factors, an athlete will never be successful in his chosen sport.

YET . . . even if given great skill, outstanding condition, favorable bodily proportions, and superior neurological efficiency . . . an athlete will never reach the level of performance of which he is potentially capable without proper development of the muscles themselves. Because . . . while all of those factors aid the muscles, it is the muscles that perform the work.

If all of the other factors are favorable, an athlete with only average muscular strength may still perform above average . . . but he will fall far short of his real potential.

Functional ability is a result of many factors . . . if all of the factors are favorable, an above average degree of ability will be produced . . . if all factors are outstanding, a championship level of performance will be produced. But if even one of the factors is below average, then an outstanding performance is simply impossible.

Some factors can be improved by proper training . . . and some cannot. You can improve skill, and doing so will usually produce the degree of cardiovascular condition required by a particular sport. But you can do absolutely nothing to improve the bodily proportions or neurological efficiency of an athlete . . . which factors are determined by heredity, and are not subject to improvement.

Skill in a particular sport, in any sport . . . comes only from the practice of the sport itself. Supplemental training devoted to other activities will do little or nothing to improve skill; in effect, running will not improve your skill at swimming . . . tennis will not improve your skill at basketball.

Skill is undoubtedly the most important factor in almost all sports . . . and a very high percentage of all sport-connected training is devoted to the development of skill, and it should be. AND . . . training devoted to the development of skill simultaneously improves the cardiovascular condition of an athlete; in effect, the practice of basketball gives an athlete the "wind" required to play basketball . . . swimming gives an athlete the wind needed for swimming. So skill and condition are linked in the sense that training devoted to increasing skill also results in an improvement in cardiovascular ability.

If skill and condition are considered to be only one factor, and for all practical purposes they are . . . then it is obvious that there are only two variables that are subject to improvement, two factors that can be improved by training . . . (1) skill . . . and (2) strength.

THUS . . . it follows that almost all training should be devoted to the improvement of skill and the development of strength. Yet, in practice, in most sports . . . the important factor of strength is usually ignored. Primarily, I think, because the importance of muscular strength is not understood . . . and in many cases is even feared.

In an automobile, the "strength" is provided by the engine . . . and nobody doubts the requirement for a powerful engine in a high-performance car. But a strong engine is not enough by itself . . . it must be linked to a good transmission and the other required parts of the power-train; if even one of the many parts is weak, then the power of the engine is largely wasted.

So the other parts of the power-train are just as important as the engine . . . but without a powerful engine, a high level of performance is still impossible.

If all of the other parts of the power-train are good, a weak engine may be enabled to work so efficiently that a reasonable level of performance is produced in spite of the weakness of the engine itself. BUT . . . the same good power-train linked to a strong engine would produce outstanding performance.

In an athlete, the power-train consists of several factors . . . (1) skill . . . (2) cardiovascular ability, or condition . . . (3) bodily proportions . . . and (4) neurological efficiency. All of which factors must be good in order to make efficient use of the power produced by the muscles. **BUT IT IS THE MUSCLES THAT PRODUCE THE POWER.**

Strong muscles are of little use if the other factors are weak, but the other factors are of absolutely no use without the power produced by the muscles.

Most outstanding athletes are superior . . . "in spite of relatively weak muscles" . . . in effect, they have a very efficient power-train, and are thus able to use the power of a weak engine with far greater than average efficiency. But given stronger muscles ( a better "engine" ) . . . their performance would be greatly increased.

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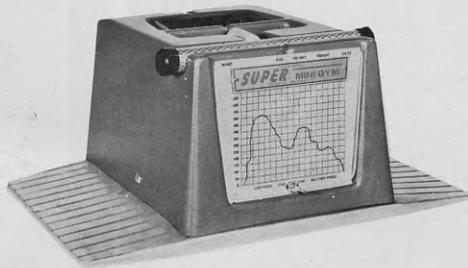
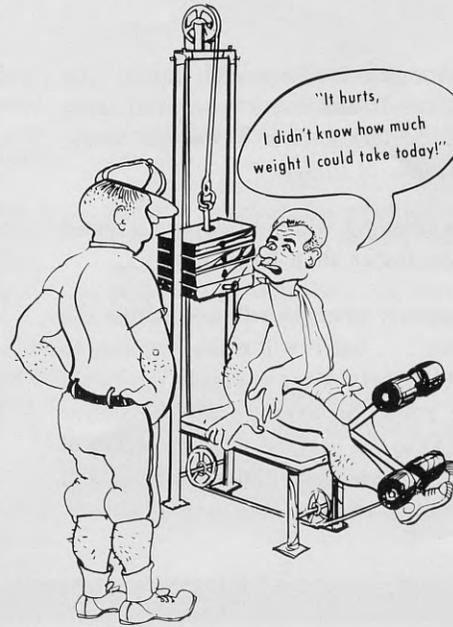
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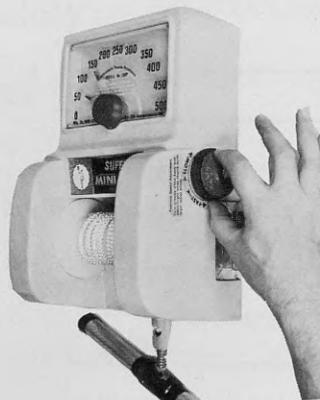
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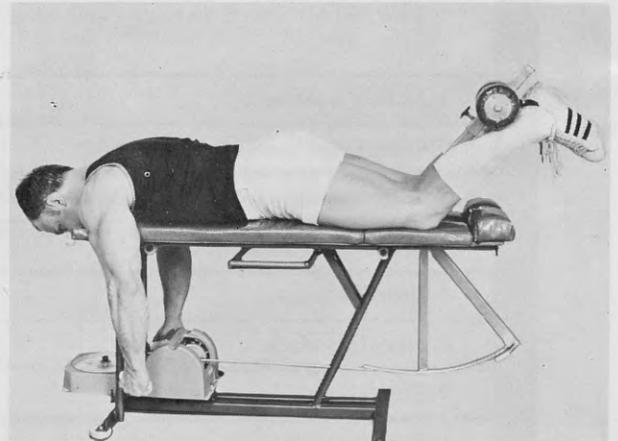
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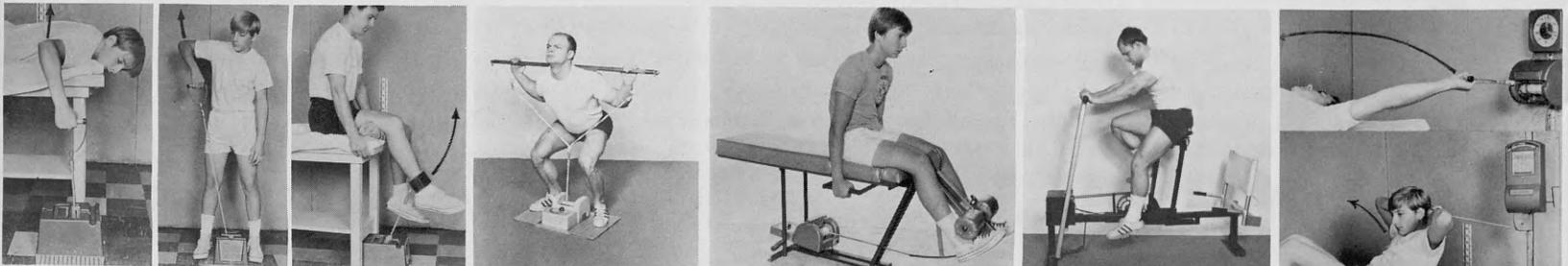
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| 2 | 7  |
| 3 | 8  |
| 4 | 9  |
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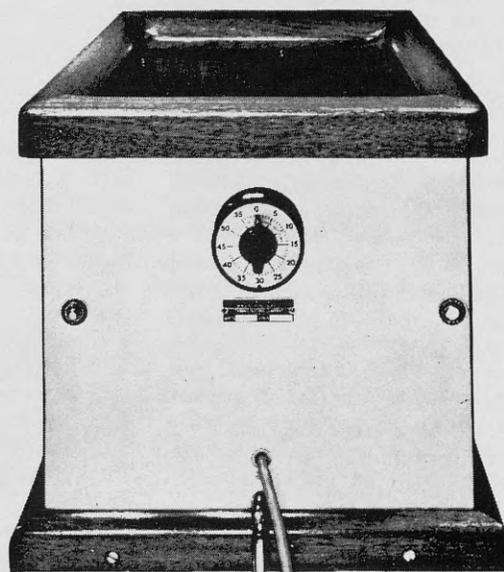
As athletic trainers, we need to be interested not only in the tools of our trade, but also in the men and women who we treat and the problems they face as people. This book **Health Science and College Life** by Corder and Showalter does a fine job of giving us information on health of the students as well as what is of interest and problems to the student.

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This is an enjoyable book that is very informative and an aid in helping the athlete.



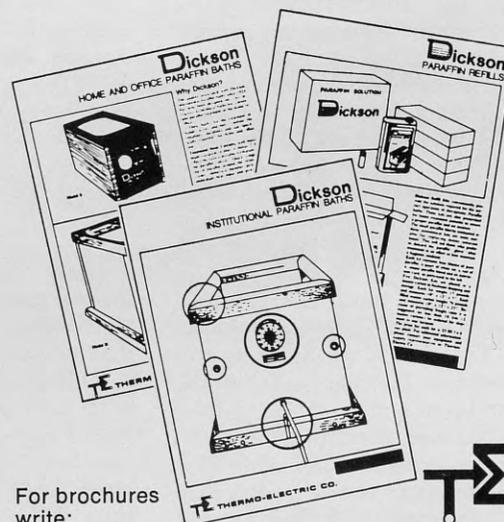
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# HEAT AND ACTIVITY

*Joe Gieck received his B.S. in physical therapy from the University of Oklahoma in 1961. Four years later he earned his M.Ed. in physical education from the University of Virginia. In addition to serving as head trainer at the University of Virginia, he is also working toward his doctorate in Counselor Education.*

by Joe Gieck, R.P.T.  
Head Trainer  
University of Virginia  
Charlottesville, Virginia



As early fall and late spring football practice may necessitate participating in weather of high heat stress, particularly now with artificial turfs compounding the problem, it is wise for all personnel to review the literature pertaining to the problems associated with heat. It is important to remember that humidity must be considered in heat stress as cases of fatal heat stroke have been recorded in an environment of low temperature with a high humidity reading.

## Physiology of Thermoregulation

The nervous control and coordination of thermoregulation is located in the hypothalamus. (1,2,3,4) Heat conservation and heat dissipation are sub-centers in the hypothalamus that regulate the body's reaction to cold and heat. Heat dissipation is regulated by cutaneous vasodilation and sweating. The hypothalamus responds to environmental temperature as the temperature of the blood courses from the periphery to the sensitive hypothalamic receptors and by the indirect afferent impulses of the thermoreceptors. (5) Other centers for homeostasis located in the hypothalamus are: water balance, vasomotor, and humoral activities. A temperature of up to 110° in heat stroke can often damage the hypothalamus. The athlete whose hypothalamus is defective would then be all the more susceptible to heat disorders with the disruption of hypothalamic functioning.

The results of heat disorders are most pronounced on the cardiovascular system. The heart must pump a greater volume in order to cool the body. For each degree of rectal temperature increase, there is a 7% additional increase in metabolism. (2,6) Hospital patients were shown to increase their cardiac outputs by 57% in the hot humid section of a New Orleans hospital during the summer as compared to those patients in a comfortably air conditioned ward. (7) As is sometimes the result, particularly in the unacclimated individual, heat stroke results as the cardiovascular

system is overloaded. There is a circulatory failure attributable to the exhaustion and cessation of heart function. As an indicator pulse rate is said to be a sign of normal cardiovascular response, with a resting rate of 110 beats/minute associated with tolerable body temperature. (8)

Body fluid lost through perspiration and not replaced is derived mainly from the interstitial fluid which is osmotically drawn by the plasma to keep plasma water content normal. During the period of heat stress, secretion from the pituitary gland of an anti-diuretic hormone conserves fluid by the reabsorption of water in the renal tubules, thus a diminution of urine flow. (2,9) One hundred fifty liters of fluid or more may pass through the kidneys with only 1.5 liters excreted. Salt is conserved, after a period of acclimation, by adrenocortical activity providing for its reabsorption in the kidneys. (2,10) A potassium deficit may arise as this sodium conserving process increases the loss of potassium from the body. (2) Large quantities of water may be lost in heavy daily activities and up to 20 grams of salt may accompany this fluid loss (1 gram equals 15 grains). During these activities men are able to regain their fluid balance only by rehydrating during and after the activity. Fluid is lost more rapidly than it can be taken in during exercise. (8)

## Heat Gain

Heat gain or loss is through the following means: conduction, radiation, convection, and evaporation. (2,8) Conduction may cause a rise in body heat of a football player through his contact with hot pads and helmet. The drinking of cool water causes the body to lose heat by conduction as this water must be warmed to body temperature. The temperature of solid surroundings may cause a rise in body heat from radiation. Men can gain as much as 250 cal/hr. in the sun (radiation). (11) The wearing of white clothing reduces radiation gain by one-half.

Heat gains by convection are con-

trolled by ventilation, shade, and insulation against heat as the temperature of the air affects convection. When the environmental temperature is below 87°, (skin temperature) 70% of body heat is lost through radiation, conduction, and convection, and 30% by evaporation. Once the temperature rises above 87° the body temperature increases supplying heat more rapidly than the body can eliminate by evaporation or perspiration. In geographical areas of high heat stress, therefore, sweating provides the primary protective mechanism of the body against overheating. As the humidity rises, the amount of body heat lost by evaporation decreases to almost zero at 100% humidity. With an exchange of cool air by ventilation, the heat elimination by convection and evaporation is greatly increased. If the air exchange is hot, the convective heat gained by the body often offsets the elimination by evaporation. (8)

## Heat Disorders

The heat disorders are: circulatory instability, water and electrolyte balance disorders, and heatstroke or heat hyperpyrexia. (8) One may predispose another. Circulatory instability is often characterized by heat syncope or fainting. Other symptoms are light-headedness, dizziness associated with postural change, long standing, or exercise, nausea and weakness. Football linemen are constantly changing postural movements, and therefore are particularly susceptible to heat syncope, a form of exercise-induced heat exhaustion. In circulatory instability, peripheral vasodilation takes place with a tendency toward venous pooling and hypotension. There is an immediate drop in pulse blood pressure with a rise in pulse rate. Recovery is usually rapid if the athlete spends a few minutes in a reclining position.

Disorders of water and electrolytes imbalance lead to heat edema, water depletion heat exhaustion, salt depletion, heat exhaustion, and heat cramps. Heat edema results in swelling of the feet and ankles during

FIGURE #1

DIFFERENCE IN WATER VS. SALT DEPLETION HEAT EXHAUSTION

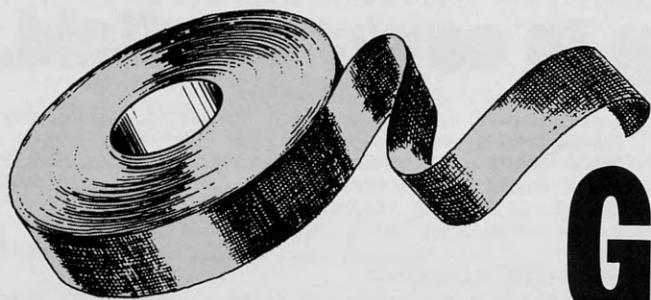
<u>PREDOMINANT WATER DEPLETION</u>	VS.	<u>PREDOMINANT SALT DEPLETION</u>
Urgency of thirst	-----	Slight or no thirst
Predisposes to heat stroke	-----	Generally does not predispose to heat stroke
High intake of salt without water is dangerous	-----	High intake of water without salt is dangerous
May occur immediately	-----	Generally progresses 3-5 days
Fatigue less prominent	-----	Fatigue prominent
Muscle cramps absent	-----	Muscle cramps present
Vomiting usually absent	-----	Vomiting present
Skin inelastic, usually reduced sweating	-----	Skin, clammy, moist
Temperature high	-----	Temperature near normal
Death occurs generally as consequence of heat-stroke	-----	Death rare
Treat by cooling and rehydration	-----	Treatment by cooling and saline drinks

early exposure to heat. This is probably due to pooling of blood in the area. Water depletion heat exhaustion is caused most commonly by a loss of body fluid from sweat loss and diarrhea. Rectal temperature increases, as does pulse rate and respiration leading to hyperventilation. The skin becomes inelastic, the cheeks hollow, the eyes sunk in, and the victim exhibits symptoms of tingling, paraesthesia, restlessness, hysteria, giddiness, and uncoordination. Water depletion heat exhaustion sometimes leads to cyanosis, hypotension, circulatory and urinary failure, heat stroke, coma, and death. There is an early weight loss of 2% which may be followed by a severe 7% weight loss. (8) Weight charts are useful in the prevention of this heat disorder. Rehydration in a cool area is necessary. Salted drinks are of no value in this instance.

Water depletion heat exhaustion and salt depletion heat exhaustion often co-exist, although (figure 1) the chemical picture of the latter is somewhat different. A large intake of unsalted fluid plus vomiting and diarrhea predispose salt depletion heat exhaustion. Less water is reabsorbed from the renal tubules but water depletion is secondary.

Salt depletion heat exhaustion generally progresses over 3 to 5 days

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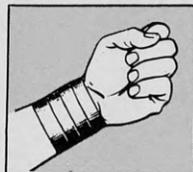


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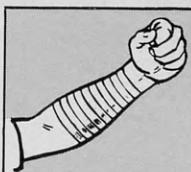
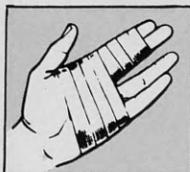
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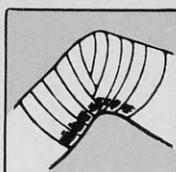
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with a normal or slightly elevated temperature. Symptoms are: weariness, headache, nausea, vomiting, diarrhea, or constipation, and muscular cramps. Cramps from heat stress are caused by water intoxication into the intra-cellular fluid resulting in dilution of the sodium chloride content. Some individuals seem to be more susceptible to cramps than others. A normal saline solution intake is necessary for prevention and treatment. (3) Enteric salt is used for prevention of salt depletion heat exhaustion but plain salt is used for its treatment. Fluids necessary in treatment and/or prevention that may mask salty taste are: beef tea, concommie, and tomato juice.

In contrast to predominant water depletion heat exhaustion, salt depletion heat exhaustion generally does not predispose to heat stroke. (8)

#### Heat Hyperpyrexia

Heat stroke and heat hyperpyrexia are the result of thermo-regulatory failure which too often results in death. Physical exercise is the most common cause in this type of reaction to heat stress. There is a primary failure in the production of sweat by water depletion, the fatigue of the sweating apparatus being unknown. (8) It is postulated that circulatory collapse from high output leads to cardiac failure and

cessation of sweating from increased venous pressure. (12)

The individual may have sudden coma onset, delirium, central nervous system disturbance, convulsions, disorientation, incontinence, involuntary limb movements, plus the usual milder symptoms of heat stress. The skin, usually hot and dry, may be pale and cool. Temperature will be high and cyanosis and lack of pupil coordination and reaction to light may be noticed. The pulse rate is often 130/minute with a rapid, labored, gasping respiration of 35/minute. Renal failure and shock may develop in the individual. (8)

Effective cooling is the treatment for heatstroke and heat hyperpyrexia. The heatstroke patient is unconscious, irrational, with a temperature of 105° plus, whereas the heat hyperpyrexia individual is conscious, rational, and has only about 105° temperature. If the temperature is reduced within an hour to 102° the cooling is usually effective. (8) If cooling is not effective, heat stroke is fatal to between 20% and 75% of the cases, depending on complications. Heat hyperpyrexia fatality rate is about 5%. Untreated cases of both are fatal.

Various methods of cooling are used. A special slatted table designed to spray cool water (44°) on all sides of the patient is effective. (8) So also is

the use of wet sheets, submersion in cold water and use of the "cold blanket" used in heart surgery. Care should be taken not to over-chill as shock and/or shivering (vasoconstriction) may occur. The extremities should be massaged to promote circulation. Chlorpromatine is often administered by medical personnel to depress the hypothalamic center for heat to promote vasodilation, and to prevent shivering. (13,14)

#### Acclimation

Heat affects performance of individuals and there is a direct correlation between heat and minor injuries, illnesses, and irritability. In a weight lifting experiment a 15% decrease in work was performed when the temperature was elevated from 68° to 75°. (8) Manual dexterity also shows a deterioration. Heat, however, seems to decrease man's willingness to work rather than his capacity to work. (8)

Individuals susceptible to heat disorders are: those past 45, obese, unacclimated, alcoholics, those with cardiovascular disorders, the physically unfit, and those just recovering from a febrile illness. (8) The implications for athletes are clearly seen. Exercise is a must for full development of physical adaption to heat. Acclimation to heat allows an individual to effectively work in heat of 80° whereas the

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physically unfit cannot perform in environments much above 65° to 75°. For full benefits of acclimation, two practices of two hours daily are best employed. One practice should be during the heat of the day. Longer sessions only put excessive strain on the athlete. Most acclimation occurs in 4-7 days and is usually complete in 12-14 days. (8) Deaths usually occur in the first 3-5 days among the dehydrated who may lose twenty or more pounds during a practice.

As the athlete becomes acclimated, his rectal temperature and pulse rate recede to near normal from an increase during heat stress. Cardiac output, blood volume, and venous tone are increased. (15, 16) The basal metabolic rate is reduced. Initially sweat rate may increase up to 3 liters/hour for improved cooling capacity. (17) After about two weeks the sweat rate then returns to near normal. With this massive dehydration, cool water and salt tablets or a saline solution (1-1½ tbsps. salt/gal.) should be available every 30-90 minutes of exercise. Five to fifteen grams of salt/day are needed at the start of the acclimation process. Vitamin C, potassium, and calcium are useful to the diet at this time also. It has been suggested that potassium deficiency leads to depressed muscular activity. Tablets\* are available containing salt, potassium, dextrose, ascorbic acid, and calcium to prevent an excess loss of any of the above. Players should weigh out and in for each practice and these charts examined for athletes losing 2-5 lbs./twenty-four hours. These are the candidates for heat illness and ideally should be excluded from practice for 24 hours. Excluded also are those with minor heat problems for 24

\*Thermotabs

hours. Vomiting and diarrhea further dehydrate the body and should be contraindications for heavy workouts in the heat. (18) Clothing should be light, loose, and white whenever possible. Mesh or net jerseys further help in body cooling. A cold shower taken prior to competition will also increase the body's tolerance to heat. (19)

The use of the Wet Bulb Globe Thermometer or Sling Psychrometer (2) is a useful index as to the number of salt and fluid breaks and the length of practice times. An example of a WBGT index is included. (Figure #2)

Physical fitness tests measuring endurance (e.g. 3-300 yd. sprints; 1-1½ minute rest between, mile run, 12 minute run, etc.) at the beginning of hot weather training will indicate to the trainer physical fitness. Those athletes in poor physical condition are candidates for heat illness. (8) It is unfortunate that these individuals are not motivated enough to report in good condition. Athletes in this condition should be worked by themselves or in selective drills until they are ready to participate. However, the use of rubber sweat suits is to be condemned for weight reduction for obvious reasons.

It is often the case that these unfit, unacclimated, often obese athletes are worked harder and, along with their restricted diets, are prime candidates for heat illness.

The ideal diets for work in the heat are ones high in carbohydrates as proteins require a great amount of water for digestion, thus adding to fluid imbalance. (2)

It is important for the athlete to maintain his normal caloric intake. The intake of large amounts of fluids leads to loss of appetite and thus diarrhea and vomiting. The athlete should drink

just enough fluid to satiate his thirst prior to eating. After he has eaten a good meal he then may take on extra fluids.

Alcohol is to be avoided during periods of heat stress as it causes dehydration and increases the metabolic load. Drugs such as the belladonna group or tropine and antihistamines cause sweat inhibition and are contraindicated. (8) Heavy meals prior to exercise are to be discouraged so the blood may be used for cooling purposes only.

Air conditioning with dehumidifiers for off practice hours benefits acclimation as the body processes don't have to constantly be active cooling the body. (7) Sweating is reduced so rehydration is not as much of a problem. Skin disorders from chronic wetness are also avoided, and the athletes are better able to rest in a cool environment, thus diminishing the fatigue element and additional cardiovascular strain.

All personnel dealing with heat should be familiar with the prevention and treatment of heat disorders and a yearly review of existing literature is to be encouraged. With the use of sound practices, athletes will be able to compete safely in times of heat stress.

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FIGURE #2

WET BULB GLOBE THERMOMETER INDEX  
for the Physically Fit and  
Acclimated Individual

WBGT READING	LENGTH OF EXERCISE	LENGTH OF WATER BREAK	ATTIRE
84 or below	45 minutes	5 minutes	Full pads
84-85	45 minutes	10 minutes	Full pads
85.1-88	30 minutes	10 minutes	Full pads
			or
85.1-88	30 minutes	5 minutes	Helmet, shorts, shoulder pads, shoes
88.1-90	15-20 minutes	10 minutes	Helmet, shorts, shoes
90.1 & above	None		

The above is for a 2 hour practice session once daily. No more than one 2-hour practice session a day should be undertaken in the heat.

(Con't from p. 63)



**Sherry Kosek has the unique distinction of being the first woman to join the National Athletic Trainers Association and the first woman trainer to be certified by the N.A.T.A. Sherry is now working as a physical therapist/athletic trainer at the University of Washington in Seattle.**

I attended Southern Illinois University and was graduated with a B.S. in Physical Education in 1966. While at Southern, I competed in swimming and gymnastics. It was during my junior year that I sustained an injury in gymnastics which kept me out of competition for a while, but at the same time introduced me to the field of athletic training. I was thankful for the care I received from the athletic trainer and hoped that other women on my team would benefit from his services also. However, the training room was not coed at that time, making it difficult to treat the womens' injuries.

I received permission to take the basic athletic training course and was able to assist our athletic trainer in treating the women gymnasts. I felt all women physical education majors should take the athletic training class, especially if they planned on coaching, but I was the only one interested. The athletic trainer encouraged me to join the N.A.T.A. and to attend clinics to stay current in the field after I graduated.

Because my knowledge in the field of athletic training was limited, I desired to be more qualified to take care of the injuries I saw in my teaching and coaching experiences. Consequently, I attended the Mayo Clinic School of Physical Therapy in Rochester, Minnesota for two years. I discovered during that time that my true desire was to work as a physical therapist/athletic trainer. I have seen the need for women athletic trainers during my competitive experience and I knew of the need for qualified people to care for athletes on both the high

school and college levels. I hoped that as a trainer on the college level I could help women coaches and athletes at all levels.

There have been many exciting moments in my career as an athletic trainer. I have been interviewed for TV, newspapers, and magazines. I have been asked to speak at many national and local conferences and clinics. But I think the happiest moment was when the University of Washington Women's Basketball Team presented me with a wooden plaque with the inscription on it, "With thanks, for the care and caring."

My word of advice to someone planning to enter the field of athletic training would be to gain as much experience as possible as a student trainer, especially in the area of recognition of injuries. Never lose sight of your goals.

### ATHLETIC WORKSHOPS FOR WOMEN

#### Summer

**July 8-19, 1974** — University of Northern Iowa, Cedar Falls, Iowa 50613. Undergraduate physical education majors, high school and college physical education instructors and anyone interested in obtaining knowledge in athletic training may attend.

Two credit hours are offered, either graduate or undergraduate. Coaching endorsement for Iowa instructors is also available. Contact Ms. Jane Mertesdorf in the Women's Physical Education Department for more information.

\* \* \*

**June 17-21** - Indiana State University, Terre Haute. This workshop is one of seven that will be co-sponsored by The Division of Girls and Womens Sports and Cramer Products, Inc. throughout the United States this summer. Contact Holly Wilson for more information.

**July 2-19** - University of Northern Iowa, Cedar Falls. Contact Jane Mertesdorf for more information.

#### Cramer-DGWS 1974 Workshops

**June 17-21** — Indiana State University, Terre Haute, Indiana 47809  
Coordinator: Holly Wilson

**June 24-28** — Madison College, Harrisonburg, Virginia 22801  
Coordinator: Dr. Leotus Morrison

**July 15-19** — LaSalle College, Philadelphia, Pennsylvania 19141  
Coordinator: Mary O'Connor

**July 22-26** — California State University, Hayward, California 94542  
Coordinator: Dee Schraffa

**July 28-August 3** — Western Michigan University, Kalamazoo, Michigan 49001

Coordinator: Billye Ann Cheatum

**August 5-9** — Western Illinois University, Macomb, Illinois 61455.

Coordinator: Dr. Elizabeth Chapman

**August 12-16** — University of Wisconsin, Oshkosh, Wisconsin 54901

Coordinator: Dr. Helen Briwa

\* \* \*

University of Montana, Missoula, Montana 59801

Coordinator: Dr. Walter Schwank, Chairman

**June 24-28** — Facilitation Exercise for Care & Prevention of Athletic Injuries (3 graduate credits)

**July 22-26** — Sports Medicine for Coaches (3 undergraduate credits)

\* \* \*

#### Fall

National Coaches Conferences sponsored by The National Association for Girls and Women in Sports (NAGWS)

**September 18-20, 1974** — Physical Education Center, State University of New York, Albany, New York

Program Emphasis: Field Hockey and Gymnastics - Intermediate & Advanced Coaching

Conference Director: Leona Rhenish

**September 27-29, 1974** — Athens College, Athens, Alabama

Program Emphasis: Athletic Training, Basketball, Volleyball, Track and Field  
Conference Director: Angeline Nazaretian

**October 11-13, 1974** — Women's Physical Education, Iowa State University, Ames, Iowa.

Program Emphasis: Athletic Training, Basketball, Gymnastics, Volleyball  
Conference Director: Gloria Crosby

**October 25-27, 1974** — Arizona State University, Tempe Arizona

Program Emphasis: Athletic Training, Archery, Tennis, Volleyball  
Conference Director: Mary Littlewood

\* \* \*

If any woman with a background in athletic training is interested in a graduate assistantship for the 1974-1975 academic year, please contact me immediately. I have a list of schools that are looking for women to start or continue an athletic training program for their women athletes.



# 1950 - 1974

## The National Athletic Trainers Association Twenty-fifth Annual Convention

by Michael O'Shea,  
Certified Athletic Trainer  
Associate Trainer  
Baltimore Colts

### *Author's Note:*

*The following article is only a brief summary of the past twenty-five years of the National Athletic Trainers Association in comparison to the facts I found after recently completing my Masters thesis, titled, The History and Development of the National Athletic Trainers Association.*

*The main source of material was gathered from minutes of meetings and board meetings of past yearly Conventions. Correspondence with leaders and key figures of the Association was a method of gaining valuable material. Material was also gathered from journals, periodicals, letters, newspaper clippings, brochures, convention programs, telephone conversations and personal interviews with early leaders and present members of the Association.*

*I wish to express my sincere appreciation to the many people who helped make this report possible.*

On June 9-12, 1974, the National Athletic Trainers Association (N.A.T.A.) will hold its twenty-fifth annual meeting in Kansas City, Missouri at the Crown Center Hotel. This will mark the Twenty-Fifth Anniversary of the N.A.T.A. since its inception in June of 1950.

Until the 19th century there was a lack of professional training and research in athletic training, but there were athletic trainers. During the early 1900's and until the 1940's, the athletic trainer lacked professionalism and education and mostly lacked an association to promote these. The

standards of the trainer were low and were seldom mentioned.

In the late 1930's, there was need to create a national organization for the athletic trainer. The first attempt to create such an organization was made in the spring of 1938 at Des Moines, Iowa at the Drake Relays. This early association, which had the name of the National Athletic Trainers Association, only lasted until 1944. It was speculated that the cause of the failure of the early Association of 1938 was due to the outbreak of World War II, the lack of communication between the members, ungained support of the Association and little acknowledgement from the school administration and the coaches. Its main cause of failure was the lack of district strength.

The Association, which began in 1938, did fail and in fact, never got off the ground. However, it was a stepping stone for the present N.A.T.A., which began in 1950. This Association, which began in 1938, did provide the nucleus for building the present National Association for athletic trainers.

In the late 1940's, trainers began to form athletic trainers organizations within their particular conferences. The enthusiasm shown by these trainers was the start of a national association. The Southern Conference of Athletic Trainers was formed in the spring of 1947 and is recorded as the earliest of these conferences to be formed.

The year 1950 is definitely a historical one for the athletic trainer in that it was in this year that the present N.A.T.A. was formed in Kansas City, Missouri. The site for that first meeting was the Hotel Muehlbach, with the meetings being held in the Little Theater of the air conditioned Municipal Auditorium. The dates of the meetings were June 23 and 24,

1950. The official name for the newly formed association was the National Athletic Trainers Association.

There were no officers for this first meeting because the authority of the Association was vested to the nine national district directors.

The Association was organized on a democratic and "states rights" principle. Democratic meant that all national directors of the Association had equal power because there were no officers such as president and vice-president. "States rights" meant that each district controls the membership of its own territory.

The first meeting was presided over by Frank Kavanaugh of Cornell University and the secretary-treasurer, or National Secretary, was Charles Cramer of the Cramer Chemical Company. The position of National Secretary was held until 1954 by Charles Cramer and for one year (1954-1955) by John Cramer, also of the Cramer Chemical Company.

Membership was open to university, college, junior college, high school trainers and coaches with the understanding that no one could be a national director unless he was an athletic trainer of an accredited university.

The purpose of the Association was to build and strengthen the profession of training by the exchange of ideas, knowledge, and methods of athletic training.

The first meeting was composed of 101 athletic trainers whose concern was the physical welfare of athletes at colleges, universities, and other institutions. The total registration of the first meeting was 122 concerned individuals.

The membership classes were designated as four types. They were active, associate, allied, and honorary members. All membership dues were \$2.00 per year, except the honorary

*National Athletic Trainers Assn. Directors Kansas City Mo. 6-24-50*



First N.A.T.A. Board of Directors  
June 24, 1950

**Back Row (L to R)**

*Chuck Cramer, Al Sawdy, Buck Andell, Joe Glander*

**Front Row (L to R)**

*Fred Peterson, Frank Medina, Duke Wyre, Henry Schmidt*

*Not Pictured: Frank Kavanaugh and Richard Wargo*

---

### GUIDE TO CONTRIBUTORS

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

1. All manuscripts should be typewritten on one side of 8½ x 11 inch typing paper, triple-spaced with one inch margins.

2. Photographs should be glossy black and white prints. Graphs, charts, or figures should be clearly drawn on white paper with black ink, in a form which will be legible when reduced for publication.

3. The list of references should be as follows: a) books: author, title, publisher with city and state of publication, year; b) articles: family names and initials of all authors, title of article, journal title (abbreviations accepted as per Index Medicus), volume, page, year.

4. It is the understanding of the editor of **Athletic Training** that manuscripts submitted will not have been published previously; and that the author accepts responsibility for any major corrections or alterations of the manuscript.

5. It is requested that each submitting author include with the manuscript a brief biographical sketch and photograph of himself in coat and tie.

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membership which had no dues and was a life membership.

It should be known that the Cramer Chemical Company of Gardner, Kansas underwrote all the expenses of the Association for the first five years. They paid for all postage, stationery, programs, and other expenses. They also collected dues from the membership and in 1955 gave the money to the Association.

The Cramers sponsored the track coaches association for two years and the coaches went on their own; thus, the Cramers felt the trainers association was also ready to function on their own. The money from dues collected for the Association amounted to over \$2,000.00 and it was felt that the N.A.T.A. could operate without financial assistance.

In scanning the history of the past twenty-five years of the N.A.T.A., one should be aware of some of the accomplishments made by our present trainers organization.

In 1951, the first constitution and by-laws of the Association was adopted and approved. The constitution and by-laws were the result of the fine efforts of the committee appointed in 1950.

The present N.A.T.A. emblem was adopted in 1952, and later in 1953 the Association selected its first honorary member. This award went to Dr. Robert Brashear of the University of Tennessee. After that year, honorary members were selected each year and is still an annual practice of the Association. As of June 1, 1974, the honorary membership of the N.A.T.A. totaled fifty honorary members.

Following the selection of the first honorary member, came the selection of the first Twenty-Five Year Award winners in 1954. Thirteen men were acknowledged and presented the award. As of June 1, 1973, there were 148 recipients of the Twenty-Five Year Award.

In 1955, Canada was added as a district and was designated as District No. 10. This was the first and last year for this district until 1966, when it was again formed. Presently, the N.A.T.A. has ten districts.

After Charles and John Cramer, the position of National Secretary was held by William Newell of Purdue University from 1955 until 1968. The title of National Secretary was changed to Executive Secretary in 1959 and finally in 1970 the title was changed to the present, Executive Director.

The first publication of the N.A.T.A. was published in 1956. The publication was the official organ of the Association and was distributed to all members of the N.A.T.A. and other interested and involved individuals. The name of the publication was, **The Journal of the National Athletic Trainers Association**. Presently, the Journal carries the name, **ATHLETIC TRAINING, The Journal of the National Athletic Trainers Association**.

A code of ethics was adopted in 1957 for the purpose of clarifying the ethical and approved professional practices as distinguished from those which might prove harmful and detrimental.

Through the efforts of the late Eddie Wojceki of Rice University, a group of athletic trainers are selected each year by the N.A.T.A. to be inducted in the Helms Foundation Hall of Fame. This award was started in 1962 with twenty-six athletic trainers being inducted into the Helms Hall Athletic Trainers Hall of Fame. As of June 1, 1974, there were seventy members inducted into the Hall of Fame in the category of athletic trainers. The Helms Hall of Fame sponsorship was assumed in 1971 by the United Savings and Loan Association of Los Angeles, California. The name has been changed from the Helms Hall of Fame to the United Savings Helms Hall of Fame.

Beginning in 1965, the N.A.T.A. went through a critical period of self-evaluation and decisions toward the future of the athletic trainer and the Association. It attempted to foresee the qualifications for the future of the athletic trainer and provide rules and regulations for his certification.

In better support of the district organizations in the Association, each district appointed a District Secretary to handle business on the district level in 1965. Each year thereafter a District Secretary was appointed.

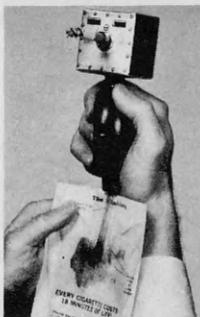
The N.A.T.A. elected its fourth Executive Secretary in 1968. He was Jack Rockwell of the St. Louis Football Cardinals Football Club. He held this position until 1970. In 1970 the name of Executive Secretary was changed to the present title of Executive Director. In 1971 the present Executive Director, Otho Davis of the Philadelphia Eagles, took office.

In 1967, the American Medical Association (A.M.A.) recognized the role of the professionally prepared athletic trainer. This added to the tribute the A.M.A. gave the N.A.T.A. in 1961 for conducting itself as an ethical professional unit.

The Professional Advancement Committee appointed two sub-committees to investigate a curriculum and certification for the athletic trainer in 1968. In 1969, an educational curriculum was approved by the N.A.T.A. Although this program was first developed in 1959, it was in 1969 that the first action was taken to implement the program.

Along with an educational curriculum, on June 1, 1974, there were twenty-three undergraduate colleges and universities which have educational programs leading to professional qualification in athletic training. Two institutions provide graduate study for the athletic trainer. All these programs are approved by the N.A.T.A.

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Allsup, Doyle . . . . . Iowa City, Ia.	Hawver, Vernon E. . . . . Riley, Kas.	Pearson, Bill . . . . . Bloomington, Ind.
Andel, Buck . . . . . Atlanta, Ga.	Hayes, Max . . . . . Lawrence, Kas.	Pearson, Frank H. . . . . Santa Rosa, Calif.
Anthony, C.M. . . . . Kansas City, Mo.	Hegdar, B.F., M.D. . . . . Leesburg, Fla.	Peters, Reaves . . . . . Kansas City, Mo.
Atherton, Bob . . . . . Wolfe City, Texas	Heining, B. . . . . Kansas City, Mo.	Peterson, Fred A. . . . . Laramie, Wyo.
Baker, Roy . . . . . Kansas City, Mo.	Heiser, James . . . . . San Antonio, Tex.	Peterson, Tom . . . . . Peoria, Ill.
* Bakke, Walter . . . . . Stoughton, Wis.	*Happinstall, Jack . . . . . E. Lansing, Mich.	*Potts, Harold E. . . . . Northford, Conn.
* Balginy, John . . . . . El Paso, Texas	Herrmann, W.S. . . . . King City, Calif.	
Barbee, Jack . . . . . Commerce, Texas	Hill, Ike . . . . . Champaign, Ill.	Qualls, Dick . . . . . Aurora, Colo.
Barger, Buck . . . . . Lincoln, Nebr.	Hoke, Gordon A. . . . . E. Lansing, Mich.	Quigley, E.C. . . . . Lawrence, Kas.
Bates, Larry . . . . . Windsor, Mo.	Holladay, Dr. L.J. . . . . Lafayette, Ind.	
Beck, Merle J. . . . . Alma, Nebr.	Hough, Raymond . . . . . Mound Valley, Kas.	
Benson, Craig . . . . . Star City, Ark.	Houser, Bill . . . . . McDonald, Kas.	Reade, Harold L. . . . . Merriam, Kas.
Biggs, Ernest R. . . . . Columbus, Ohio	Hughes, Dr. Paul . . . . . Ottawa, Kas.	Redding, Bert . . . . . Kansas City, Mo.
Bilger, Charles M. . . . . Olathe, Kas.	Hughes, Tom . . . . . Eugene, Ore.	Reeb, Kearney . . . . . Los Angeles, Calif.
Blackburn, Dick . . . . . Long Island, Kas.	Hunton, Wallace . . . . . Hartford, Ark.	Reece, A.S., M.D. . . . . Gardner, Kas.
Blaine, Marvin . . . . . Grandview, Mo.	Hyatt, Chuck . . . . . Chicago, Ill.	Reninger, Jim . . . . . Cincinnati, Ohio
Bock, Don . . . . . Lincoln 8, Nebr.		Reynard, Leon (Red) . . . . . Manhattan, Kas.
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Boyce, Lloyd . . . . . Minneapolis, Minn.	Jenkins, W.M. . . . . Tulsa, Okla.	Rideout, Blaine . . . . . Lincoln 8, Nebr.
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	Klein, Dick . . . . . Champaign, Ill.	Sawdy, Al . . . . . Bowling Green, Ohio
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* Carr, Dick . . . . . Tucson, Ariz.	Kosalko, Henry . . . . . Lafayette, Ind.	* Schneider, Paul J. . . . . Lincoln, Nebraska
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Caywood, Keith E. . . . . Emporia, Kas.	Kulakowski, Ed . . . . . Sherman, Texas	Seelye, Mel . . . . . Hutchinson, Kas.
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* Drake, "Ducky" . . . . . Santa Monica, Calif.	*Medina, Frank . . . . . Austin, Texas	Stewart, Raymond . . . . . Courtland, Kas.
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	Meek, Don . . . . . Ottawa, Kas.	Stricker, Arnold N. . . . . Lawrence, Kas.
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Ferguson, Stanley . . . . . Olathe, Kas.	Miller, Kenneth . . . . . Winfield, Kas.	Taylor, Joe . . . . . Commerce, Tex.
Ferguson, Ben F. . . . . Fresno, Calif.	*Miller, Lyle S. . . . . Walnut Creek, California	Thomas, W.P. . . . . Salina, Kas.
Foster, M. Grant . . . . . Richmond, Va.	Miranda, Jess . . . . . Winfield, Kas.	Thomason, Dewey . . . . . Walnut Ridge, Ark.
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Gabel, Edward A. . . . . Kalamazoo, Mich.	*Morris, James H. . . . . Speedway City, Ind.	Towson, Herb D. . . . . Kansas City, Mo.
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Gray, H. Gordon . . . . . Overland, Kas.	Nigro, Dr. D.M. . . . . Kansas City, Mo.	Webster, Willard L. . . . . Youngstown, Ohio
Green, Paul . . . . . Christopher, Ill.		*Weingart, Robert E. . . . . Greendale, Wisc.
Grinaker, Finn . . . . . Moorhead, Minn.	Oberheiman, Dean . . . . . Chapman, Kas.	Wais, Homer . . . . . Red Oak, Ia.
Guiffoli, Wm. . . . . Kansas City, Kas.	Odum, George O. . . . . State College, Miss.	*White, Robert . . . . . Dearborn, Mich.
*Gunn, Bobby . . . . . Houston, Texas	Owen, Fred . . . . . Tuscaloosa, Ala.	*Wike, Dave . . . . . Coral Gables, Fla.
*Gwynne, Whitey . . . . . Morgantown, W.Va.	Owen, H.P. "Spud" . . . . . Canton, Mo.	Willey, Norman B. . . . . Lafayette, Ind.
Hacking, Tom . . . . . St. Louis, Mo.	Parker, Charlie . . . . . Davidson, N.C.	Williamson, Jack . . . . . Berkeley, Calif.
*Hand, R.F. . . . . Claremont, Calif.	Parsons, Neal B. . . . . York, Nebr.	Wilson, James A. . . . . Bowling Green, Mo.
Hartman, Charles W. . . . . Rock Island, Ill.	Patterson, Cecil . . . . . Dansas City, Mo.	Wojecki, Eddie . . . . . Houston, Texas
		*Worden, Joe . . . . . Nashville, Tenn.
		Wormsley, Mrs. A.A. . . . . Orrick, Mo.
		Wormsley, Alvin A. . . . . Orrick, Mo.
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The certification of athletic trainers had its start on December 31, 1969. After that date, which was designated as a date for the "grandfather clause", all members who wished to become certified were required to take a certification examination developed by the N.A.T.A. with the help of the Professional Examination Service of the American Public Health Association.

The first certification test was given in Waco, Texas at the annual Southwest Athletic Trainers Association District No. 6 meeting in July of 1970. By December of 1973, 142 candidates were examined for certification by the N.A.T.A.

In order to recruit athletic trainers, the Association developed a brochure on the program of education approved by the N.A.T.A. and the colleges and universities which have educational programs leading to the professional qualification in athletic training. The brochure was first distributed in 1971 and titled, **The Athletic Trainer**. In 1973, the N.A.T.A. printed a second brochure, titled, **Athletic Training Careers**.

In order to update the Association and develop a sound administrative organization, the N.A.T.A. approved a plan of structural reorganization in June of 1970. This plan was designed with the idea to assure the members of the Association of continual advancement, improved service, and new projects for the present as well as the future.

The reorganization adopted by the N.A.T.A. in 1970 was structured to have officers, division directors, committee chairman, committee members, and district secretaries as well as division directors and committees. The officers of the new reorganization were the Board of Directors, the President, the Executive Director, the Administrative Assistant, the Advisory Committee, the Parliamentarian, and the Executive Council.

So that the Association could take advantage of the individual experience and education of the membership, Division Directors and committees within each division were formed. The four divisions were the Division of Professional Services, Division of Professional Advancement, Division of Information Services, and the Division of the National Program and Business. In 1974, the committees were no longer divided into various divisions.

The first and present President of the Association, who took office in 1970, is Robert Gunn of the Houston Oilers Football Club.

At the twenty-third meeting of the N.A.T.A. held in St. Louis, Missouri, in 1972, the Association realigned

districts of the present National Association. The main purpose of realignment of districts was to divide up the Provinces of Canada into each of the districts which were in the northern part of the Association.

By 1972, the N.A.T.A. was represented at nine national meetings of various national professional organizations. It was also affiliated with six different organizations and had advisory representation with three national organizations.

The membership of the N.A.T.A. in February, 1973, was recorded as 2,371 members in nine categories. Of this total, 760 were in the certified category. This was an increase from the 101 Association members at the first meeting in Kansas City, Missouri in 1950.

A final note for the 1974 year concerns the female athletic trainer in the N.A.T.A. A survey was taken by the Association of the twenty-three schools approved by the N.A.T.A. with an undergraduate curriculum in athletic training. It was found that fifteen of these schools accept women in their athletic training program and both schools with a graduate curriculum in athletic training approved by the N.A.T.A. accept women.

## Conclusion

In conclusion, one could say that the Association has brought the athletic trainer a long ways from the days of the "water boy", which the athletic trainer was so often called. The Association has raised its standards for the athletic trainer by adopting certification procedures and placing guidelines on a curriculum of education for the athletic trainer.

The certification by the N.A.T.A. of athletic trainers is a minimum standard of competence for the athletic trainer. This certification of athletic trainers by the Association is a means to insure an athletic training profession with high standards.

The N.A.T.A. is the first successful organization for the athletic trainer. It is a very necessary organization in order for the members to share ideas, gain recognition and better improve the standards of athletic training.

It is a successful organization because of the district strength within the Association, the many dedicated athletic trainers working to build an organization, the outstanding leadership and the strong educational and certification program for the athletic trainer.



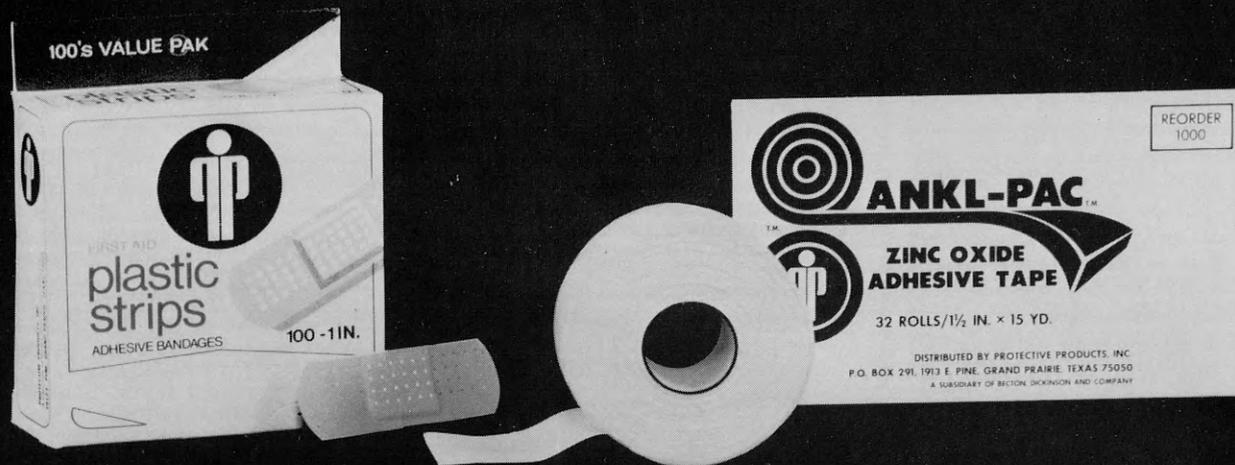
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# ANNOUNC

## NATIONAL ATHLETIC TRAINERS ASSOCIATION PROCEDURE FOR CERTIFICATION

TO BECOME CERTIFIED AS AN ATHLETIC TRAINER BY THE NATIONAL ATHLETIC TRAINERS ASSOCIATION, AN INDIVIDUAL MUST MEET THE REQUIREMENTS IN ONE OF THE FOLLOWING SECTIONS I, II, III, or IV. **QUALIFICATION IN MORE THAN ONE SECTION IS NOT REQUIRED.**

**SECTION I. STUDENTS WHO HAVE GRADUATED FROM AN APPROVED UNDERGRADUATE OR GRADUATE PROGRAM, who have met the following criteria:**

1. **Completion of the N.A.T.A. approved athletic training curriculum requirements, and proof of a Bachelor's degree from an accredited college or university.**
2. Have spent a minimum of two (2) years under the direct supervision of N.A.T.A. approved supervisors.
3. Passed an examination which includes basic principles of athletic training.
4. Proof of one (1) year of continuous Active or Student membership in N.A.T.A. immediately prior to application for certification.

"A person who is once certified under these procedures remains certified as long as he or she meets the minimum requirement for continuing professional education as defined by the Professional Education Committee as approved by the Board of Directors and only as long as such requirement is met."

**SECTION II. APPRENTICESHIP - Students of Athletic Training may qualify for certification by:**

1. On the job training (minimum 1800 hours) under direct supervision of a certified N.A.T.A. member.
2. Passed an examination which includes basic principles of athletic training.
3. Proof of a Bachelor's degree from an accredited college or university.
4. By presentation of a letter of recommendation by his N.A.T.A. immediate supervisor.
5. By presentation of a letter of recommendation by his acting Team Physician.
6. Proof of one (1) year of continuous Active or Student membership in

N.A.T.A. immediately prior to application for certification.

Athletic Trainers who are certified under the apprenticeship program remain certified as long as he or she meets the continuing education requirement as described under Section One and only as long as such requirement is met.

**SECTION III. ATHLETIC TRAINERS ACTIVELY ENGAGED WITHIN THE PROFESSION - This section deals with athletic trainers actively engaged within the profession but not yet certified.**

The N.A.T.A. definition of "actively engaged" is as follows:

A person who is on a salary basis (no fee) employed by an educational institution, professional athletic organization, or other bona fide athletic organization for the duration of the institution's school year or for the length of the athletic organization season and who performs the duties of athletic trainer as a major responsibility of his employment; or whose responsibility is the teaching in an N.A.T.A. approved athletic training curriculum is actively engaged in athletic training.

A person may become certified by:

1. Proof of five years of athletic training experience, beyond that as a student athletic trainer on an undergraduate level (effective July 1, 1975).
2. Passing an examination which includes the basic principles of athletic training.
3. Proof of graduation from an accredited four year college or university.
4. By presentation of a letter of recommendation from an N.A.T.A. certified athletic trainer.
5. By presentation of a letter of recommendation by his acting team physician.
6. Proof of one (1) year of continuous Active membership in N.A.T.A., immediately prior to application for certification.

Athletic Trainers actively engaged in the profession certified under this section remain certified as long as he or she meets the minimum continuing education requirement as described under Section One and only as long as such requirement

is met.

**SECTION IV. PHYSICAL THERAPY DEGREE GRADUATE - Physical Therapy graduates may be awarded certification provided they meet the following requirements.**

1. A minimum of two (2) years experience in Athletic Training, beyond that as a student athletic trainer on a secondary school level, under direct N.A.T.A. approved supervision.
2. Proof of a Bachelor's degree from an accredited college or university.
3. By the passing of a required examination which includes basic principles of Athletic Training.
4. By presentation of a letter of recommendation from an N.A.T.A. certified athletic trainer.
5. By presentation of a letter of recommendation by his acting team physician.
6. Proof of one (1) year of continuous Active or Student membership in N.A.T.A. immediately prior to application for certification.

Athletic Trainers certified under Section IV shall remain certified as long as he or she meets the continuing education requirement as described under Section One and only as long as such requirement is met.

**SECTION V. SPECIAL CONSIDERATION - Any member who has passed an Athletic Training Course (See Appendix A - Section 11-m), or presents evidence of successful completion of an N.A.T.A. approved workshop for credit and has satisfied the requirements for a State Teaching License with at least a minor in Physical Education and/or Health Education may be endorsed as a secondary school Athletic trainer.**

Endorsement may be extended to full certification when requirements of any other sections are met. Application for full certification must be initiated within five (5) years of initial endorsement or endorsement shall be terminated.

# CEMENTS

At the present time, the Audio Visual Aids Committee of the N.A.T.A. is attempting to gather available bibliography lists of reference materials, periodicals, and books for a period 1964-1974 pertaining to athletic training, physical therapy, sports medicine, etc. We have in our possession (1) a bibliography 1964-1972 of the medical aspects of sports, (2) a bibliography of sports medicine 1964-1970 published by the American Academy of Orthopaedic Surgeons, (3) Literature Search No. 72-34, August 1970-October 1972,

"Sports Medicine," from the National Library of Medicine.

We would like to ask the membership to send us any available bibliographic lists which might be of help in the preparation of a bibliography of periodicals and books to be printed and distributed to our membership at the conclusion of the project. At present, we are simply collecting pertinent lists and will go from there in an in-depth search for materials.

Gordon Stoddard, Chairman  
A.V. Committee, N.A.T.A.

## N.A.T.A. WORKSHOP APPROVAL

N.A.T.A. approved clinics and workshops will be listed in the **Athletic Training**. Application forms and guidelines for N.A.T.A. approval may be obtained from Sayers Miller, University of Washington, Seattle, Washington 98105, or Kerkor Kassabian, Boston-Bouve College, Northeastern University, Boston, Massachusetts 02115. All program approvals by the N.A.T.A. are only on a year basis and all 1973 approved programs if offered in 1974 must seek reapproval.



March 5

Dear Fellow Trainers,

A short note of heartfelt thanks and gratitude for the many cards and letters you sent to me while I was in the hospital. They let me come home Feb. 12 and if I keep improving as I am at present I'll be back at work about March 18. I had a procedure done that is known as a hemicolectomy.

Am looking forward to seeing all of you in Kansas City on June 9, 10, 11, 12 at the beautiful Crown Center Hotel for our best convention ever.

Sincerely,  
Bobby Gunn

## N.A.T.A. CURRICULUM DEADLINES

All institutions desiring N.A.T.A. approval of their curriculums must submit their applications to Sayers Miller at the University of Washington, Seattle, Washington 98105 prior to September 1st for the final action at the Board's Meeting in January and prior to February 1st for final action at the Annual Meeting. If applications are received after the above listed dates they will be carried over to the next evaluation period.

See you in Kansas City  
June 9 - 12

## CERTIFICATION INFORMATION

Persons wishing to be certified as an athletic trainer by the N.A.T.A. must fully qualify under the Procedures for Certification prior to taking the certification examination.

The examination is given one day prior to the annual convention in June at the convention site, and on the third Sunday of January on a regional basis. In certain rare instances other dates may be announced on the district level by newsletter.

Persons desiring to take the examination may obtain application materials from N.A.T.A., 3315 South Street,

Lafayette, Indiana 47904, provided the individual meets the membership requirement. The application must be requested in writing ninety (90) days prior to the date of examination. No applications will be furnished to applicants less than sixty (60) days prior to the examination date in order to assure that the application deadline of six weeks prior to the examination may be met.

If further information is required, contact Lindsay McLean, Chairman, N.A.T.A., Board of Certification, 1000 South Street, Ann Arbor, Michigan 48105.

The Joint Advisory Committee on Sports Medicine of the Ohio High School Athletic Association and the Ohio State Medical Association announces that any interested physician in Ohio who would like to become team physicians can contact Bob Clinger, Executive Secretary of this committee. Mr. Clinger can match-up the schools and interested physicians.

**Graduates from NATA Approved Athletic Training Curriculums who have successfully completed Certification Requirements:**

**Indiana State University**  
Willard C. Tice (1967)  
Holly Wilson (1969)  
Richard Terry (1972)  
James Gallaspy (1973)

# Abstracts



"An Investigation Into the Evaluation of Hockey Helmets," Bellow, D.G., Mendryk, S., and Schneider, J. **Medicine Sci in Sports**, 2:1 pp. 43-49, Spring, 1970.

There have been many investigations into the safety of football helmets with many different types of testing apparatus, but very little testing of hockey helmets. This article is concerned with the development of a suitable instrument for the testing of the impact absorption characteristics of various hockey helmets.

Ten hockey helmets were tested, by placing a wooden form containing piezoelectric accelerometer inside the helmet and suspending it from the ceiling so the velocity of impact could be predetermined. Through these measures the safety value of the helmet was evaluated by measuring the peak acceleration, calculating the maximum kinetic energy absorbed, and considering the shape of the acceleration-time-curve.

This testing technique found definite differences in several helmets. They found that different angles of impact and types of helmets could be effectively tested with this instrument. The authors feel it is important to evaluate helmets on the basis of three factors: shape of acceleration-time-curve, peak acceleration, and the area under the acceleration-time-curve which relates to the kinetic energy absorbed. The final conclusion was that thorough testing would have to be done to completely evaluate the effectiveness of any helmet, but this device will be very useful.

Donald P. Roach

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"Let's Put It All Together; Facts Related to Knee Injury With Emphasis on the H.S. Athlete," Karl K. Klein, **Scholastic Coach**, Vol. 42, No. 8, April, 1973.

Annual surveys show the high

school football player is more open to knee injuries than the college player.

The reason behind this result is said to be the major anatomical and structural difference between the knee of the college and high school athletes. The following list illustrates some of these differences.

1. High school athlete has a lower quad-hamstring strength ratio (10:5 vs 10:6).
2. Significantly looser collateral ligaments, both medial and lateral was found in the high school athlete.
3. Approximately 51% of high school athletes have more anterior cruciate ligament looseness.
4. More high school athletes show hyperextension of the knee.
5. At the start of fall practice sessions, the high school athlete may show lesser total physical readiness in strength, endurance, and cardio-respiratory fitness.

Because of his "puberty spurt" period, some of these problems cannot be radically altered. However, this does not mean that you cannot help reduce his injury potential. The following are some suggested approaches that could well be used in reducing injury potential.

1. More time spent on general and specific conditioning before starting contact drills.
2. Spend more time on strength conditioning for the hamstrings.
3. Spend time on medial and lateral progressive leg exercises to aid in support of collateral ligaments.
4. Give close evaluation to the heel on the football shoe. Players wearing cleats receive two to three times more knee injuries of greater severity than other types of heels worn, such as the bar or lock-on heel.
5. Care should be taken in selection of individuals for contact sports.
6. Be aware of conditions on artificial turf. Some individuals' knees may not be conditioned for the increased forces produced by increased traction, speed, and cutting action.

"Knee Strengthening" is a program

that can be controlled and encouraged by the coach. Good results will benefit the team as well as individuals.

Tom Carter

\*\*\*

"Carbohydrate Loading: A Dangerous Practice," Mirkin, G. **JAMA**, Vol. 223, #13, March 26, 1973.

Reviewing methods of carbohydrate loading in muscles, Mirkin recalls the research of Astrand, which pointed out that the most glycogen could be bound to a muscle by first depleting the carbohydrate intake (while increasing workload), then, after two to three days of this, increasing carbohydrate intake as much as possible. However, the author carries his inquiry further, noting an example of an older male distance runner prone to heart disease who showed a recurrence of symptoms after following this model in preparation for a marathon race.

With this in mind, Mirkin questions the reasonability of carbohydrate overload in susceptible individuals, implicating carbohydrates along with saturated fats as the cause of some forms of heart disease.

Greg Vergamini

\*\*\*

"Androgens and Athletes," Frasier, S.D. **Am J. Dis. Child**, Vol. 51, pp. 479-480, April, 1973.

The widespread use of androgen-anabolic steroids in professional, college, and high school athletics is a growing concern. Dr. S. Douglas Frasier in his review of the available literature attempts to answer two questions: (1) Are androgen-anabolic steroids safe? (2) Are they of any benefit to athletes? Dr. Frasier prefaces his research by saying the dose of these steroids and the duration of its administration will alter their effects. Often times when athletes use anabolic steroids, their assumption is that if a little is good, then more is better. Therefore, the dosage and duration is

quite often increased.

Based on the research done, Dr. Frasier found four possible adverse effects:

1. In the prepubertal boy, accelerated epiphyseal development and possible early epiphyseal closure.
2. Adult sexual function may be altered. This would include inhibiting the pituitary LH secretion.
3. Antigonadotrophic effects have also been found. Some of this effects were loss of libido, decreased potency, and diminished testicular size.
4. Alteration of liver function and plasma concentration of many proteins was also discovered.

As for the possible benefits from the use of androgen-anabolic steroids, Dr. Frasier found that the studies show that no significant changes or benefits were shown from their use. This paper concludes that the use of androgen-anabolic steroids are unsafe, have no benefit, and their use by athletes should be deplored.

Larry Starr

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"Causative Factors in Hamstring Strains," Burkett, L.N. *Medicine and Science in Sports*, Vol. 2, No. 1, pp. 39-42, Spring 1970.

For many years team physicians, trainers, and coaches have questioned why some athletes sustain hamstring injuries while others do not. The object of this paper was to investigate some possible causes for this injury since no previous studies or scientific data is available.

There were 57 subjects used in this study: 37 San Diego Charger football players and 30 college sprinters. Each sample was divided into an experimental (injured) or control (non-injured) group. The major difference explained was that the football players were tested before injury and the track men were not tested until fully recovered. The tests used were the Clarke cable tension strength test for knee flexion and knee extension and the Well's sit and reach test for hip flexion.

As a working hypothesis it was assumed that an imbalance in muscle strength between certain leg muscles might be a causative factor for hamstring strain incidents. The experimental procedure, therefore, was designed to establish (1) a strength imbalance between the knee flexors of both legs, (2) a strength imbalance between the knee extensors of both legs, (3) the flexion-extension strength

ratio, (4) bilateral muscle strength, and (5) sit and reach test scores. The strength and reach scores were measured in percentages.

The five parameters assessed were analyzed statistically. The results showed a significant difference for strength imbalance between flexors, and flexion-extension strength ratio in both the football players and the track men. The track athletes also showed a significant difference for imbalance between extensors and bilateral muscle strength.

The paper concluded with some interesting discussions and observations. (1) If a strength imbalance between knee flexors is greater than 10% there is a predictive value for potential hamstring injury. Six of the 37 football players had this difference and four had injuries to the weak hamstring within three weeks of the testing. (2) The results of this study strongly indicate that reduction of strength imbalance between limbs will be beneficial in the prevention of hamstring injuries. (3) It should be recognized that strength imbalance alone is not responsible for the hamstring strain.

Kent P. Falb

\*\*\*

"Quadriceps Contusions in Young Athletes; Relation of Severity of Injury of Treatment and Prognosis," Jackson, Douglas W. and Feagin, John A., *The Journal of Bone and Joint Surgery*, 55-A: 95-105, January 1973.

A planned study of consecutive cases seen in one academic year was carried out to evaluate the prognostic significance and therapeutic implications of the clinical picture and also the results of a staged program of treatment. Contusions were classified as mild, moderate, or severe by listed criteria. The treatment program investigated was divided into three phases: Phase I, Limitation of Motion; Phase II, Restoration of Motion; and Phase III, Functional Rehabilitation. Between September, 1969 and June, 1970 sixty-five cadets sustained quadriceps contusions. The 47 patients with mild contusions were not hospitalized, but were treated with rest, ice and elevation until stabilized. Moderate and severe contusions were all treated with rest, ice packs and elevation for the first 48 hours. Hospitalization was required for 10 of those 18 patients. The men who were not hospitalized used crutches with non-weight-bearing gait. Surgery, oral or parenteral proteolytic enzymes, intramuscular

hyaluronidase, steroids, or radiotherapy were not used. According to this study the following points are the keys to obtaining full recovery after quadriceps contusions. 1) Early recognition and classification of the severity of the initial quadriceps contusion followed by appropriate restrictions on activity. 2) Hospitalization of patients with moderate to severe quadriceps contusions for at least the first 48 hours. 3) Prevention on reinjury during the recovery phase. 4) Concentration on regaining full extension of the knee and quadriceps strength. A too aggressive and too early program to regain knee flexion often results in reinjury due to a muscle strain. The development of traumatic myositis ossificans was related to the severity of the quadriceps contusion.

John Wells

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"Wrestling and Weight Fluctuations," Cooper, Donald L. *Journal of American College Health Association*, 21:451-454, June, 1973.

Because there has been little scientifically-controlled research, there is only meager evidence of any actual serious medical problems suffered by wrestlers trying to cut weight for participation.

The whole concept of cutting weight for wrestling is based on the ideal that this weight loss is excess subcutaneous fat and that each wrestler competes at his optimum weight. The safe way to reach this optimum weight is through hard work and a balanced diet with adequate fluid intake. The diet should be made up of about 50 percent carbohydrates, 15 to 20 percent protein and 30 to 35 percent fat.

The two main sources of weight which can be removed are body fat and body fluid. A well-conditioned athlete will have a body fat content of 5 to 7 percent of his weight. The problems arise because it takes a great deal of hard work to lose body fat. Some wrestlers, in order to make weight for a match and avoid the work, will resort to total starvation for a few days along with dehydration. All wrestlers should keep their weight within 3 to 5 pounds of their certified weight throughout the entire season. A proper program of conditioning, both pre-season and in-season, will not allow reduction of weight at a rate faster than 2 to 5 pounds per week.

Gary Lake

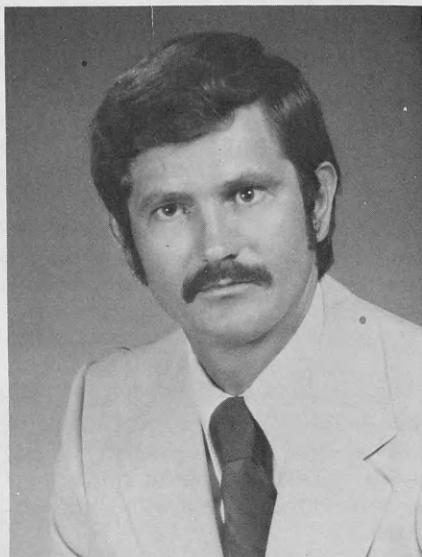


# EFFECTS OF ANKLE TAPING UPON DYNAMIC BALANCE

*Study presented at the 49th annual convention of the Texas Association for Health, Physical Education, and Recreation, San Antonio, Texas 30/November/72.*

by Bill Kozar, Ph.D.

Motor Learning Laboratory, Department of Physical Education, Texas Tech University, Lubbock, Texas



*Dr. Bill Kozar received his B.A. and M.S. in Physical Education from Western Illinois University in 1963 and 1964. He received his Ph.D. in Motor Learning from the University of Iowa in 1970.*

*At present Dr. Kozar is Assistant Professor in the Department of Health, Physical Education and Recreation at Texas Tech University, Lubbock, Texas.*

## Introduction

Ankle taping preceding practice and game competition has become a commonly accepted means of adding stability to this highly mobile and oft injured body part. Tape manufacturers, athletic trainers, and coaches contend that supportive adhesive taping will reduce lateral mobility of the joint and thus prevent or minimize injury. Nellen, writing in **Medicine and the Green Bay Packers** states that "application of not-elastic tape will support the ankle and reduce lateral movement" (7). It should be noted that little scientific research is available to support this contention and yet some professional sports go so far as to levy

compulsory fines on players should they attempt to practice or play without having their ankles taped. Rawlinson (9) in dealing with protection and prevention of injuries states that the University of Oklahoma football and basketball squads must have their ankles taped or wrapped before all practice sessions as well as all games. However a study by Rarick and others (8) found that the stress of activity quite rapidly loosens the tape and leaves the ankle with little actual protection. It is also noteworthy that while tape manufacturers have continually pushed for increased taping of ankles as a stability measure, shoe manufacturers have at the same time advocated low-cut basketball and football shoes for greater freedom of movement. A paradoxical situation appears to exist! Perhaps Klein's (5) recommendation that the use of the high top shoe be reconsidered is appropriate for he claims it adds support and yet is not as detrimental to speed as most coaches have been led to believe.

However, some coaches have cautioned that constant taping may in fact weaken the ankle joint, making it more susceptible to injury when not taped -- while others have postulated that some knee injuries may be traced to the reduced lateral movement of the taped ankle joint. Studies by Wells (14) and Stretch (12) on college and high school athletes failed to support this contention.

It has further been claimed that while adding support to the ankle-taping hinders such performance factors as speed, agility, flexibility, balance, etc., and therefore it must have a detrimental effect on performance and perhaps learning of sports skills.

## Review of Literature

This author was able to find few published studies investigating ankle taping effects on such performance factors as previously mentioned. Mayhew (6) tested sixty-six subjects

divided into two groups of thirty-three on the 50 yard dash, vertical jump, standing long jump, and Illinois agility run. Subjects were tested on successive days, ankles taped one day and not taped the second day or vice versa. The ankle taping procedure used was the standard closed Gibney technique. Paired t test-analysis found significant differences in vertical and standing long jump performance while no significant differences were found for the 50 yard dash and Illinois agility run.

Thomas and Cotton (13) tested fourteen students with previous athletic experience under the following conditions: neither ankle taped, right ankle taped, and both ankles taped. The order of testing was randomly varied for each subject. The performance task used was the right boomerang run -- a test that required the subject to make continuous right turns. Each subject received four trials under the three conditions. A non-significant F ratio was reported indicating no significant differences between the taped and non-taped conditions. Dr.'s Thomas and Cotton perceived that a psychological factor regarding taping might be affecting the subjects. Therefore they asked each subject to state before and after testing whether they felt taping would help or hinder their performance. The responses were approximately 50/50 thus they concluded that the psychological factor was not affecting performance.

Juvenal (3) tested thirty students on the running vertical jump under three conditions. No tape, linen tape, and elastic tear tape (tear tape is a relatively new product which the manufacturer claims will give lateral support yet be flexible enough for maximal plantar and dorsal flexion). Results showed that subjects jumped significantly higher when their ankles were not taped versus taped, and they jumped significantly higher when taped with elastic tear tape versus linen tape. In testing college and high school subjects on a submaximal treadmill run under taped and non-taped conditions Collins and Wells (1) found that ankle taping did not significantly affect knee flexor and extensor strength.

The results of the studies reviewed tend to lead one to the conclusion that ankle taping hinders jumping ability

but has no effect on speed of movement, agility, and strength. No studies were found which specifically measured the effects of taping on dynamic balance, and yet, dynamic balance has been for years, especially following Fleishman's work (2), recognized as one of the very important factors affecting performance.

### Procedure

It was the purpose of this study to compare the learning of a novel dynamic gross body balancing skill under the following conditions: (1) neither ankle taped, (2) both ankles taped.

Thirty male volunteers were selected from the physical education majors program at Texas Tech University. Fifteen subjects were randomly assigned to a taped group and fifteen to a non-taped group. The ankle taping used was the closed basketweave technique as outlined in Klafs and Arnheim (3).

Cloth tape of the same brand name was used on all taped subjects and each subject was taped by the head spring sports trainer or his assistant. Each subject received 12-30 second trials on

a stabilometer with a ten second rest between trials. The stabilometer (Figure 1) used in this study consisted of an adjustable bearing suspended platform  $27\frac{2}{3}$  inches long and  $22\frac{2}{3}$  inches wide. Balance was considered within  $5^\circ$  of horizontal determined by Sylvania 312 photo transistors. Time in balance per thirty second trial was recorded to the nearest 1/100th second on a standard electric clock.

To control experimenter presence effect on learning and performance each subject was alone in the testing room while on the stabilometer. The experimenter was in an adjoining room observing through a hidden Sears one-way viewer. The fifteen taped subjects were each asked after completing the 12th trial if they felt that having their ankles taped helped or hindered their ability to balance on the stabilometer.

### Results

Figure 2 shows the learning trends for time in balance for four blocks of three trials. As can be observed the taped group started and finished higher than the non-taped group. The non-taped group exhibits the classic negatively accelerating learning curve

over the twelve trials. However, both learning curves accelerate negatively much too fast -- for within group *t*'s for time in balance over the first and last

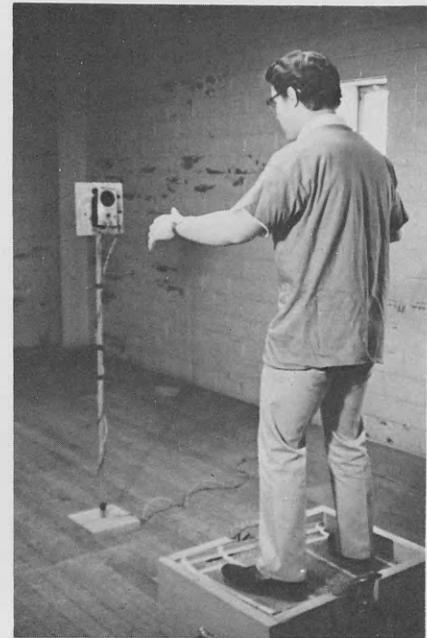


Figure 1  
Stabilometer

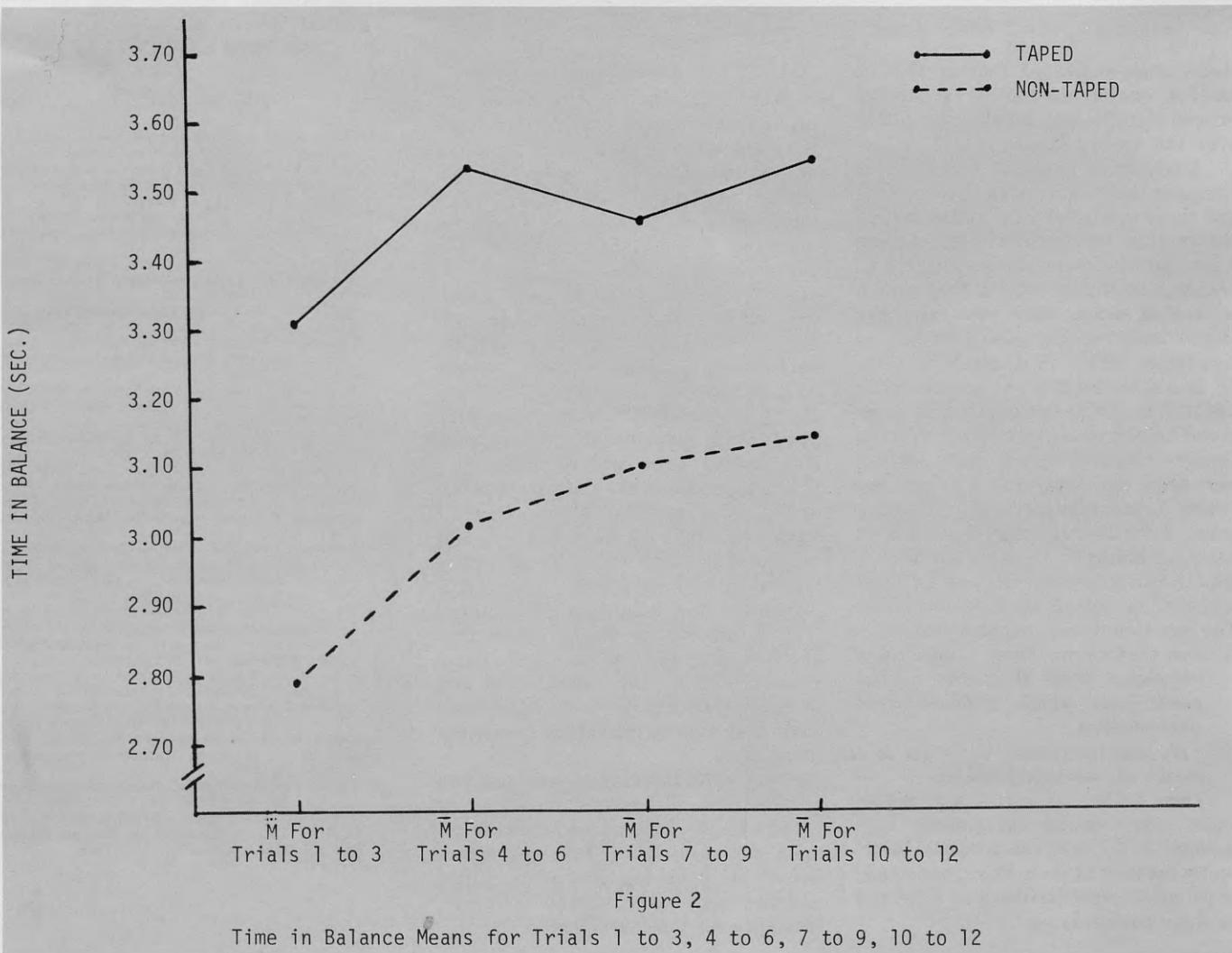


Table I  
Summary of Analysis of Variance of Time in Balance  
Scores for Groups and Conditions

Source of Variation	df	SS	MS	F*
<b>Trials 1-12</b>				
Between Groups	1	210.62	210.62	1.75
Within Groups	28	3378.77	120.67	
Total	29	3589.39		
<b>Trials 1-4</b>				
Between Groups	1	25.17	25.17	1.99
Within Groups	28	354.55	12.66	
Total	29	379.73		
<b>Trials 5-8</b>				
Between Groups	1	20.34	20.34	1.00
Within Groups	28	568.61	20.31	
Total	29	588.95		
<b>Trials 9-12</b>				
Between Groups	1	24.86	24.86	1.37
Within Groups	28	508.82	18.17	
Total	29	533.68		

\*An F value of 4.20 is required for significance at .05 level with 1 and 28 degrees of freedom.

three trials indicated that at the .05 level of confidence neither group improved significantly in balancing ability over the twelve trials.

Analysis of variance was used to compare the groups over twelve trials and three groups of four trials. Table I shows that no significant differences were found between these comparisons -- leading to the conclusion that taping of ankles using linen tape and the closed basketweave technique has no significant effect on dynamic balance.

In asking each taped subject after the 12th trial if he felt having his ankles taped helped or hindered his balancing ability -- nine of fifteen or sixty percent answered that they felt having their ankles taped hindered their performance. A further attempt was made to have the subjects identify just how or why they felt having their ankles taped hindered or helped their performance. The most common responses were:

- (1) Felt that having their ankles taped restricted their flexibility at the ankle joint which hindered their performance.
- (2) Felt that fatigue set in sooner as a result of the taped ankles.

Thus while no significant differences were found it appears that perhaps a majority of subjects incorrectly translated their kinesthetic and/or proprioceptive feedback as it related to their performance.

### Discussion

The fact that neither group improved significantly over twelve trials is rather difficult to explain since the author and others have used this or a similar apparatus and found twelve trials sufficient to produce significant learning curves. Several possible explanations do exist.

(1) All subjects were physical education majors and perhaps their past varied athletic experience and its rather high demand on dynamic balance meant that their balancing ability had been learned to such a high level that they could not improve significantly over twelve trials.

(2) It is possible that the past athletic experience and the rather specific balancing ability acquired previously may in fact have acted as proactive inhibition and interfered with their learning a new balancing skill. Singer (11) in an earlier study found that athletes did not do as well on a stabilometer as did non-athletes and perhaps this interference hypothesis could help explain his rather surprising findings.

(3) While all subjects had been or were at the time of testing members of varsity teams, it is possible that some subjects had not had previous experience in having their ankles taped and this may have affected their performance on the stabilometer.

Despite the non-significant findings it appears that several questions seeking more definitive answers remain regarding ankle taping and its effect on performance and learning -- especially considering the amount of tape and consequently the money being spent on tape by athletic departments.

Some of these questions are:

1. Is there reduced and/or incorrect kinesthetic feedback interpretation by the athlete leading to reduced performance levels?
2. Is there in fact reduced lateral movement? As Rarick and others (8) found there may well be at the beginning of the game or practice session but not near the end -- thus giving the athlete a false sense of security.
3. What are the psychological factors surrounding ankle taping and how significant are they in terms of performance?

Simon (10) in a recent article has stated that the athletic training profession must critically examine practices that are based perhaps more on folklore or Madison Avenue type promotion than controlled research, and he maintains that the profession must do more in conducting research seeking answers to the type of questions listed above.

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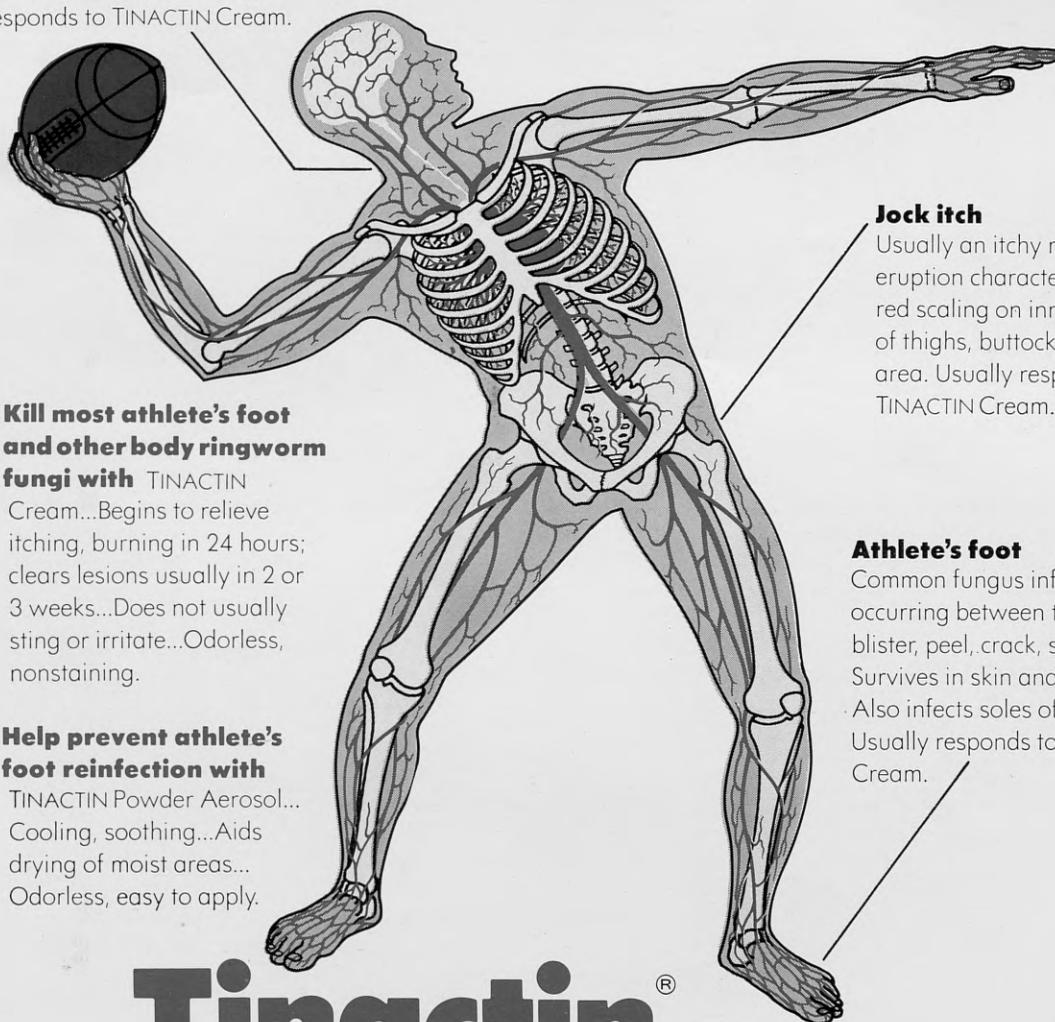


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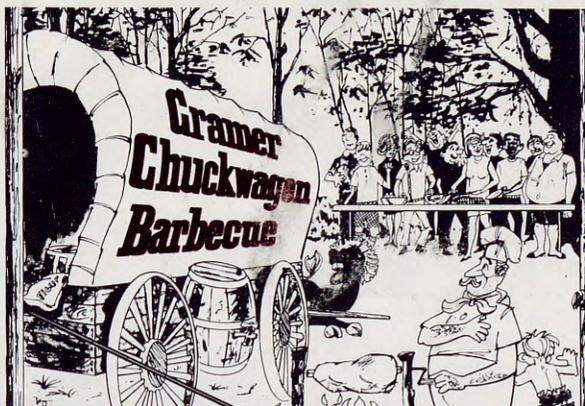
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## INVITATION

Athletic Trainers, Physicians, students, wives and families are cordially invited to join the Cramer Chuck Wagon on Sunday afternoon. Transportation to this gathering will be furnished from the Crown Center Hotel. Come Early—and its casual dress as usual—Don't be afraid of the weather it may be held indoors or out!

## NATA 25th Anniversary

CROWN CENTER · KANSAS CITY, MO.  
June 9 - 12, 1974



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\$68.75 = 125 gal. (5 cases) + 1 Cooler

### BRAND X

\$80.00 = 96 gal. (4 cases) + 1 Cooler