



ATHLETIC TRAINING

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION



IN THIS ISSUE —

- The Sport of Giving
- A Functional Approach in the Rehabilitation of the Ankle and Rear Foot
- Adverse Drug Interaction in Sports Medicine
- Topically Applied Tobacco: Its Effect on the Healing Time of Contusions
- More Tips from the Field

**VOLUME 15
NUMBER 4
WINTER 1980**

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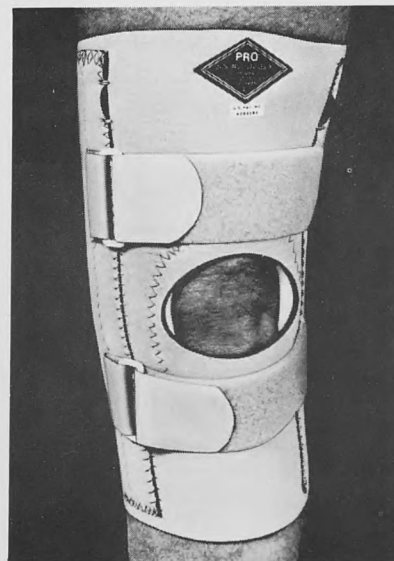
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ATHLETIC TRAINING

THE JOURNAL OF
THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

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Athletic Training is published in the Spring, Summer, Fall and Winter by the National Athletic Trainers Association, a non-profit organization. Second class postage paid at Greenville, NC 27834, and additional mailing offices.

The views and opinions expressed in *Athletic Training* are those of the authors and not necessarily those of the National Athletic Trainers Association.

Non-member subscriptions are available at \$15.00 per year and may be obtained by writing to *Athletic Training*, P.O. Box 1965, Greenville, NC 27834.

CHANGE OF ADDRESS may be made by sending old address and new address with zip code number. Instructions should state whether change is temporary or permanent. Allow thirty days for changeover. Address changes should be sent to: P.O. Box 1865, Greenville, North Carolina 27834.

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The National Athletic Trainers Association

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President's Message



Dear NATA Members:

On behalf of your officers and the national office staff, best wishes for the new year. It is our hope that 1981 will bring happiness and renewed strength for all your endeavors.

As we begin a new year we must be aware of the growing complexities of our profession. We have to be prepared to cope with these challenges in a positive manner. It is important we continue to promote athletic training so that administrators, parents, and the general public are aware of the value of a sound athletic training program. I hope each of you will make a special effort, whether it be large or small, to upgrade athletic training.

In November, athletic training reached a goal in regard to the preparation of future athletic trainers. Central Michigan University approved a sixty-six hour major in athletic training. This is the fulfillment of a dream and a goal of the late Bud Miller. It was accomplished due to the efforts of Ron Sendre. The realization of this goal will certainly help us in many NATA endeavors.

Our licensure efforts are making good progress in some areas. It is important that we continue to work toward this. Any licensure effort is better than none at all.

Our organization continues to grow at a healthy rate. As you might expect, the growth in membership makes it necessary to grow in other areas. At our annual meeting in Philadelphia, I appointed an Ad Hoc Study Committee to investigate the centralization of all our activities into one office. This committee will present their findings at the February Board of Directors' meeting. Hopefully we will be able to present some firm ideas, suggestions, and recommendations for your consideration prior to our annual meeting in Ft. Worth.

It is extremely important that we determine the direction in which NATA is headed. If we are not sure where we are going, any road will take us there. Aim at nothing and you will hit it everytime! When we determine where we are headed, we will have made a very important decision about the future of NATA.

It is always gratifying to hear from so many of you. Please continue to let your officers know how we can best serve you and give us your thoughts on the direction you want NATA to go.

Warm regards to each of you.

Sincerely,

A handwritten signature in dark ink, appearing to read "Bill". The signature is written in a cursive, somewhat stylized font.

William H. Chambers



*Season's
Greetings*

*from
the entire
Journal Committee
and
Staff.*

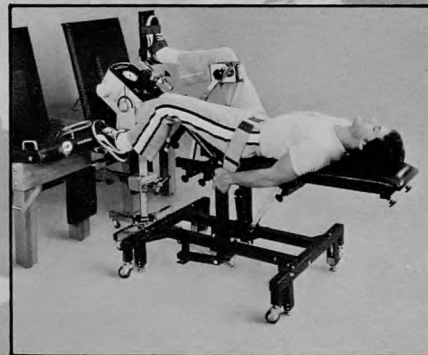
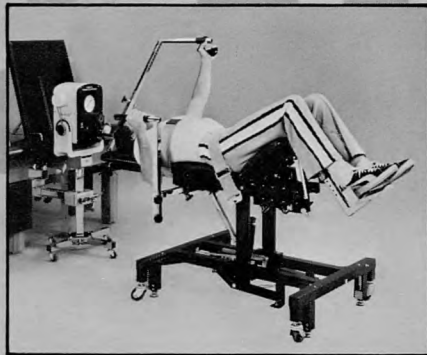
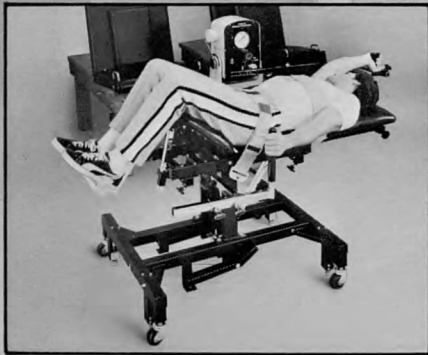
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Editor's Remarks



Ken Wolfert, ATC
Miami University

Holiday Greetings

From each and every member of the Journal Committee we hope your holiday was most enjoyable and you are looking forward to a successful and prosperous new year.

New History Book

We finally have our first NATA history book thanks to Mike O'Shea and his fine effort in getting everything together. It is now available by contacting the National Office. This book is a must for everyone's library.

Tear Out Section

Beginning with this issue, and as a regular feature each Winter, there will be a convenient tear-out section with the most recent edition of the NATA Constitution, Bylaws, and Code of Ethics. We hope this will help each member remain aware of the foundation of our existence.

Journal Index

In the Spring issue, you can expect to receive a complete index of all articles that have appeared in *Athletic Training* from 1956-79. The articles will be indexed by major topic and by author and will be available as a convenient tear-out centerfold. A big thanks should be given to Ed Christman, our literature editor, for the time it took to compile all of this material.

Survey

The spring issue will include a compiled report of the Journal Survey taken last spring. Although the response rate was not as good as we had hoped, it appears that we heard from those who feel that the Journal is important to them and our profession.

CPEU Credit Coming

By next year at this time we hope to have a CPEU Credit program available in the Journal. Look for more information in the next issue.

Give Up Those Secrets

Don't forget that most of us can benefit from the unique ideas and experiences that many of you take for granted as being common place. Try us out and send in those helpful suggestions for publication under your Journal's sections specifically for "Tips", "Case Studies", or "Guest Editorials".

Scholarship Contributions

In recalling the presentation of all NATA scholarship awards in the Fall 1980 issue of *Athletic Training*, it may interest you to learn more about one of our contributors — NFL Charities. I refer you to the article entitled, "The Sport of Giving" that we have reprinted from PRO!, the official magazine of the National Football League which can be found in this issue. It is important for our readership to appreciate the tremendous efforts made by NFL Charities in behalf of so many worthy causes. We are very honored, indeed, that the NATA is one of the recipients.

Editorial Commentary

Here is an interesting and thought provoking opinion from one of our very concerned members:

Is Athletic Training a Profession?

John Sciera, ATC, LPT

What is a profession? "A profession is an occupation based on specialized intellectual study and training, the purpose of which is to supply skilled service with ethical components to others for a definite fee or salary. The economists' view is that the profession is a non-competing group. The sociologists' view is that the professional worker is subject to institutional or nominative controls(1)."

What is most striking in the above statement is that a profession is viewed as an occupation based on specialized intellectual study and training. If we look at other recognized professions over the years such as architecture, dentistry, medicine, nursing, accounting, law and physical therapy, we find that they all have a definite curriculum with precise, exact, and fixed course work within the curriculum. For example, all students in the professions of dentistry, medicine and nursing must take a course in anatomy. Anatomy is the cornerstone of each one of these disciplines. It would be unthinkable that any one of these professions would omit anatomy in its professional preparation.

State Education Departments or legislatures are the only structures in our society that legally recognize the various professions. One may have passed a national bar examination (if there were one) in the legal profession, but could not practice in any state unless he/she passed the state's qualifying examinations. This holds true for nursing, medicine, physical therapy or dentistry. National Athletic Trainers Association Certification is not recognized in any states. Texas, Georgia and Kentucky are the only states that legally recognize athletic trainers. Practicing athletic training in the other states is not recognized by their respective state education departments. (*Editor's Note: The exception to this is in the states of North Carolina and Ohio as far as we know — KW*).

Licensing is the highest form of regulation within a state. The professions are the ones for which states reserve this highest form of regulation. Currently, states are examining existing groups which are not deemed as professional and are beginning deregulation processes to eliminate these groups. States are also very hesitant in granting new licenses to groups which they feel are not truly professional. The present philosophical tenet in most states is deregulation rather than increased regulation.

A bill for licensing has to go before a committee of both houses of the state before it can be moved on either to

Mr. Sciera is the head athletic trainer and undergraduate curriculum director at the State University of New York College at Cortland in Cortland, New York 13045.

another committee or to the floor. Most committees will examine the bill to see that the group is professional in character. Most states expect each group to answer 18 questions which pertain to its professional character. New York State Athletic Trainers Association under President Michael Cappeto, Trainer at Columbia University, has prepared a 205 page document in answering the 18 questions.

One of the objections to the bill is the argument that professions are able to treat private patients off the street. An architect, lawyer or dentist can open an office and the people can come to them directly. However, nursing and physical therapy are professions, but people cannot come to them directly. Patients are referred to these people by physicians. A nurse cannot treat (give medication or administer shots for example) a patient without the prescription of a physician. A physical therapist cannot give a whirlpool treatment without a prescription legally within the state even if he opens a private office. A nurse may operate a nursing home, but patients cannot be treated there without the prescription of a physician. So this point can definitely be argued. Athletic trainers work only under a physician's prescription, the same as the nurse, one of the oldest of regulated professionals. This point could definitely be argued on the floor of the state legislature or privately.

Another objection is that if athletic training should be helpful to the citizens as the profession claims it is in the prevention, treatment and rehabilitation of athletic injuries, then it should be mandated in the state. A mandated bill would be very difficult to pass because it would be considered highly inflationary. If trainers are mandated for all high schools, all the high schools in the state must be multiplied times \$2000 to \$3000. This could be argued on the basis of it being highly inflationary, especially if it ever got to the floor of the Senate or Assembly.

The third objection is that the athletic training group does not have a professional educational structure in preparing its students. There is nothing stated in NATA as to what type of school, curriculum or staff the school possesses in the 1980 program. The state education department of each individual state should rule on the adequacy of the school's claim to legitimate recognition. Secondly, the school should have the proper professional courses to educate the student. Thirdly, the staff must be adequate, there should be a qualified athletic trainer, a team physician, and an administrator of the program.

As long as our group accepts the 1800 hour qualification, it will be very difficult to accept the trainers as a professional group. What group of professionals who are licensed now do not have a definite structure in their curriculum? Can a physician be licensed just by doing clinical practice without definite courses in a regulated sequence of progression in his/her educational system? This holds true of the nurse, the lawyer or the architect.

This is the biggest badge of professionalism. How can we argue licensure and professionalism with an 1800 hour program?

This is our greatest downfall. Instead of increasing our professional standing by increasing our curricular content, we continue to hamper our professional growth through our continuance of mediocrity and ordinariness. Blue-collar workers such as plumbers, carpenters and masons have an apprenticeship program. If we intend to be white-collar professionals, we should clean up our act or fold our tent.

How can a sponsor of our bill for licensure answer the critics? (If the sponsor of the athletic training bill should go to the floor and be asked: Can a music major become an athletic trainer without any curricular program?) It would be ludicrous to try to answer this question from the critics. If we present a bill based on the 1800 hour

curriculum, how do we argue this point? White-collar or blue-collar?

Do we want to become professional? If we do, let us have a definite professional program in the preparation of our students.

We have all the ingredients of a profession which is concerned with the health, safety and welfare of its clients except one, and that is the professional preparation of students.

We have the scientific principle, the social need, the skills, discretion and judgment, beneficial work, group consciousness, technical language and scientific knowledge, code of ethics, and religious, social, as well as scientific, medical and athletic training principles.

A profession has the responsibility for determining its own role and responsibility for meeting society's needs for its service. In deciding its own role, consideration must be given to what is best for all of society as well as for each individual member. The decision is ours; let's not fail the ones we are most concerned about, our athletes.

Mr. Frank George, Past President of NATA asked all states to seek licensing after an article by Chuck Moyer in our NATA Journal *Athletic Training* challenged our legitimacy. Are we concerned about improvement, licensure, legality and professionalism? If we are concerned, we have one way to go, professional recognition through curricular improvement and final state licensure. It is every athletic trainer's professional responsibility, not only to himself and his colleagues, but to all youngsters and adults who are participating vigorously in athletics at all levels.

Reference

1. R. Louise McManus, "Society's Demands of Nurses that Influence Education". Problems of Graduate Nurse Education: Report of Work Conference, Work Conference, Work Conference Report No. 2, New York, Bureau of Publications, Teachers College, Columbia University, 1952, p. 8.

Do it and keep it safe . . . (KW)

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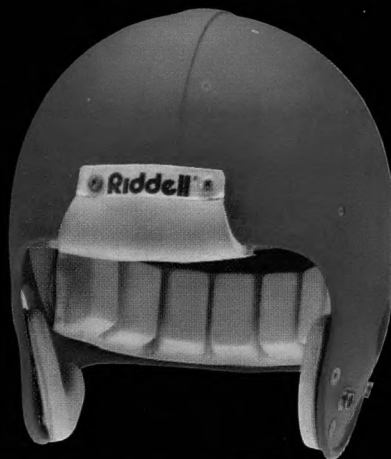
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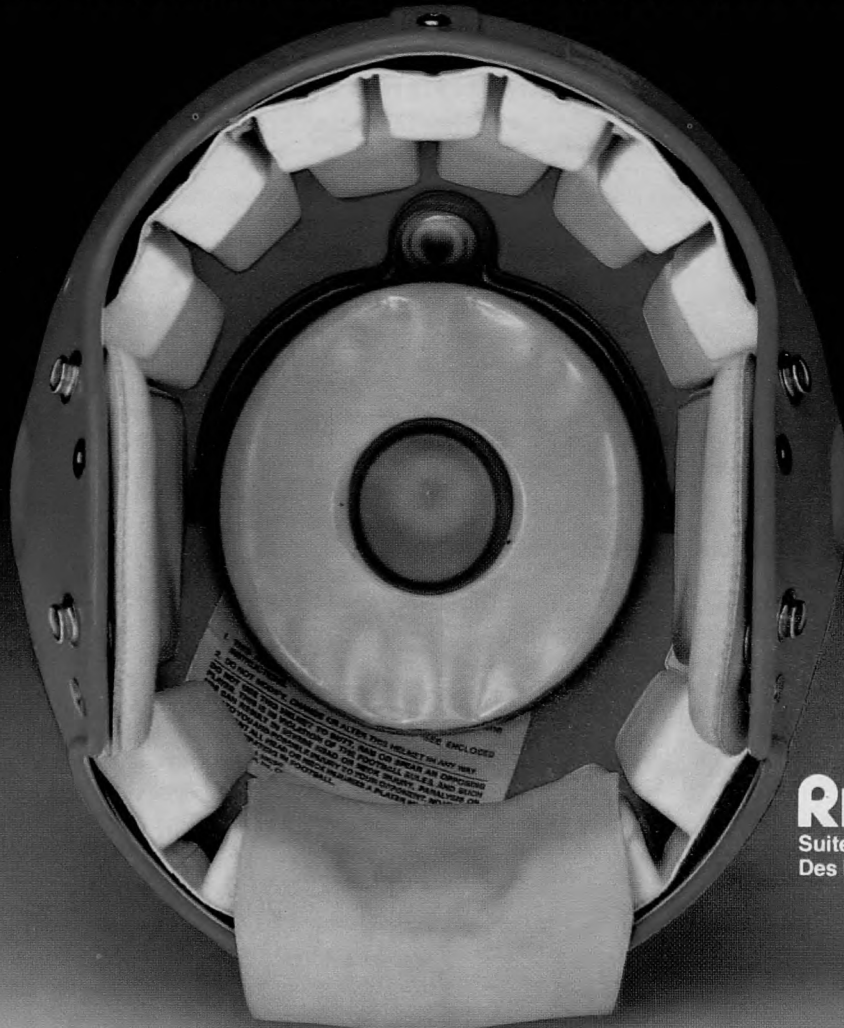
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Announcements

National Macaroni Manufacturers Association Offers New Leaflet

A new recipe leaflet, entitled "Pasta — Food for Athletes" has been designed for the millions of American sports participants. Geared to the nutrition-conscious, the leaflet explains the role of pasta and its contribution to a healthy diet.

Enriched pasta is an excellent source of "complex" carbohydrates . . . recommended in the Dietary Guidelines established by the U.S. Department of Agriculture and the Department of Health, Education and Welfare. In addition to its energy-giving content, pasta supplies protein, iron and the B vitamins . . . niacin, thiamine and riboflavin. It is a low-fat, low-sodium, easily digested food, and you can enjoy all the wholesomeness of pasta for only 20-220 calories per average entree serving.

Recipes range from soup to dessert in "Pasta — Food for Athletes". All are easy to prepare, and feature the goodness of pasta *plus* other vital nutrients.

For information to obtain additional copies, contact: National Macaroni Manufacturers Association; Burson-Marsteller; 866 Third Avenue; New York, New York 10022. Attention: Gloria Marshall.

CERTIFICATION COMMITTEE ITEM SOLICITATION

The certification committee is again in need of individuals who would be willing to construct questions for the certification exam. For details on construction format, contact: Carl F. Krein, ATC, Athletic Trainer, Central Connecticut State College, New Britain, Connecticut 06050.

The Professional Education Committee Announces the Presentation of Its Sixth and Seventh Professional Preparation Conferences — "The Sayers J. "Bud" Miller Professional Preparation Conferences"

During 1981, the NATA's Professional Education Committee will hold for the second time two professional preparation conferences. The first of these conferences will be held at the Opryland Hotel, Nashville, Tennessee on January 9, 10, and 11, 1981. The second conference will be held at Rickey's Hyatt House, Palo Alto, California on February 6, 7, and 8, 1981. The format for both conferences will be very similar with the Friday sessions primarily designed for program directors of athletic training education programs and persons interested in athletic training education. The final two days of the conferences will be directed towards providing all certified athletic trainers with continuing education information on current issues and techniques for the prevention and care of athletic injuries.

Leon Skeie, Orange Coast College, is serving as the chairman with Jack Redgren, Vanderbilt University, serving as site chairman for the Nashville conference.

Gary Delforge, University of Arizona, and Lou Ostering, University of Oregon, are serving as co-chairmen for the Palo Alto Conference. All information and/or questions concerning this conference should be directed to either of these co-chairmen.

The proceedings of both conferences will be recorded, edited, collated, and printed for publication. The registration fees for any one of the conferences are: \$35.00 preregistration and \$45.00 at the door for NATA members; \$70.00 preregistration and \$80.00 at the door for non-members.

NATA Honors Top Trainers

The National Athletic Trainers Association (NATA) announces the winners of its fifth Annual Athletic Trainer of the Year Awards.

Winners of the fifth annual awards were selected from among certified athletic training professionals by a vote of the association's international membership. The awards are sponsored by NATA and The Drackett Company, makers of NUTRAMENT, a body building energy food used widely by athletes.

Trainers of the Year for 1980 are: Professional Division — Otho Davis, Philadelphia Eagles; College Division — John Spiker, West Virginia University; Junior College Division — Leon G. Skeie, Orange Coast (CA) College; and High School Division — James Dodson, Midland (TX) High School.



Pictured (left to right) are: James Dodson, Leon G. Skeie, Bill Braswell, Vice-President, The Drackett Company; Otho Davis, and John Spiker.

Make plans to attend one or both of these conferences early since the enrollment at each of these continuing education programs is limited to 250 participants. Don't become an obsolete athletic trainer — continue your education.

NATIONAL ATHLETIC TRAINERS ASSOCIATION "Sayers J. "Bud" Miller Professional Preparation Conference" Opryland Hotel, Nashville, Tennessee January 9, 10, and 11, 1981

Friday, January 9, 1981

7:00- 8:00 PM REGISTRATION

8:00- 9:30 PM "Future of Athletic Training In The Eighties" — Professional Education Committee Panel

Saturday, January 10, 1981

8:00- 8:30 AM REGISTRATION

8:30-10:00 AM "Bend, Don't Break — Flexibility To Prevent Injury"
-Leon Skeie, ATC

10:00-11:30 AM "Strength Development For Prevention Of Injury"

-Keith Kephart, Strength Coach
University of Kansas

11:30- 1:15 PM LUNCH

ATHLETIC TRAINING • Winter 1980

- 1:30- 3:00 PM "Time Management & Control In Athletic Training"
-William T. Brooks
Head Football Coach
Canisius College
- 3:00- 5:00 PM "Overuse Syndromes — Evaluation Of And How To Prevent Them"
-Dr. Robert Bielen
Team Physician
Athletes In Action

Sunday, January 11, 1981

- 9:00-10:30 AM "Safeguards In Athletic Equipment For The 1980's"
-James Van Deusen
National Program Director
Southern Athletic Equipment Co.
- 10:30-12:00 Noon Speaker To Be Determined

NATIONAL ATHLETIC TRAINERS ASSOCIATION

"Sayers J. "Bud" Miller
Professional Preparation Conference"
Rickey's Hyatt House, Palo Alto, California
February 6, 7, and 8, 1981

Friday, February 6, 1981

- 1:00- 2:00 PM REGISTRATION
- 2:00- 2:45 PM "Structuring Clinical Experiences For Athletic Training Students"
-Rick Troxel, ATC
- 2:45- 3:45 PM "Athletic Training In The Eighties"
"Athletic Training Education Programs: Approval or Accreditation?"
-Lou Osternig, PhD, ATC
"Graduate Athletic Training Education Programs"
-Gary Delforge, EdD, ATC
"Athletic Training Education in Junior Colleges"
-Leon Skeie, ATC
"Licensure For Athletic Trainers"
-Rich Troxel, ATC
- 3:45- 4:00 PM BREAK
- 4:00- 5:00 PM Questions and Answers: "Athletic Training Education"
-Gary Delforge, EdD, ATC
Lou Osternig, PhD, ATC
Leon Skeie, ATC
- 5:00- 6:30 PM DINNER
- 6:30- 7:30 PM REGISTRATION
- 7:30- 8:30 PM "Legal Consideration in Athletic Training and Sports Medicine"
-Richard Ball, JD
- 8:30- 9:30 PM Questions and Answers: "The Athletic Trainer & The Law"
-Richard Ball, JD

Saturday, February 7, 1981

- 7:45- 8:30 AM REGISTRATION
- 8:30- 9:15 AM "Musculoskeletal Injuries In The Adolescent Athlete"
-Donald Schroeder, MD
- 9:15-10:00 AM "Clinical evaluation of Acute Ankle, Knee, and Shoulder Injuries"
-James Glick, MD
- 10:00-10:15 AM BREAK
- 10:15-11:00 AM "Diagnosis And Management Of Anterior Cruciate Injuries"
-George Hewson, MD
- 11:00-12:00 Noon Questions & Answers: "Orthopedic Problems in Athletics"
-James Glick, MD

- George Hewson, MD
Donald Schroeder, MD
- 12:00- 1:30 PM LUNCH
- 1:30- 2:45 PM "Rehabilitation of Surgical Knee Injuries"
"Surgical Arthroscopy"
-Jim Welsh, RPT, ATC
"Anterior Cruciate Repair"
-Joseph Webb, RPT, ATC
"Lateral Retinaculum Release"
-Sue Anthony, RPT, ATC
- 2:45- 3:15 PM Questions & Answers: "Rehabilitation Of The Knee"
-Sue Anthony, RPT, ATC
Joseph Webb, RPT, ATC
Jim Welsh, RPT, ATC
- 3:15- 3:30 PM BREAK
- 3:30- 4:30 PM "Conventional Uses of Therapeutic Modalities"
-Don Chu, PhD, RPT, ATC
- 4:30- 5:30 PM "Flexibility and Injury Prevention"
-Leon Skeie, ATC
- 6:15 PM BOARD BUS TO FISHERMAN'S WHARF

Sunday, February 8, 1981

- 8:30- 9:15 AM "Clinical Evaluation Of Head And Neck Injuries"
-Chris Meyers, MD
- 9:15-10:00 AM "Prevention of Head And Neck Injuries"
-Lindsay McClean, RPT, ATC
- 10:00-10:15 AM BREAK
- 10:15-11:00 AM "Evaluation of Low Back Injuries"
-Michael Go, RPT, ATC
- 11:00-11:45 AM Questions & Answers: "Injuries To The Head And Spinal Column"
-Michael Go, RPT, ATC
Lindsay McLean, RPT, ATC
Chris Meyers, MD
- 11:45 AM ADJOURN

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

Revised: October 1980

REGIONAL

(All regional sites subject to a minimum of six candidates per site and limited to a maximum of thirty candidates).

January 18, 1981

- | | |
|--------------------------|-------------------------------|
| Eugene, Oregon | Saratoga, California |
| Fort Worth, Texas | Raleigh, N.C. |
| Grossingers, N.Y. (EATA) | Oxford, Ohio |
| Lexington, Kentucky | (All sites subject to change) |

Deadline for requesting application forms:

October 15, 1980*

Deadline for returning application forms:

December 1, 1980*

March 15, 1981

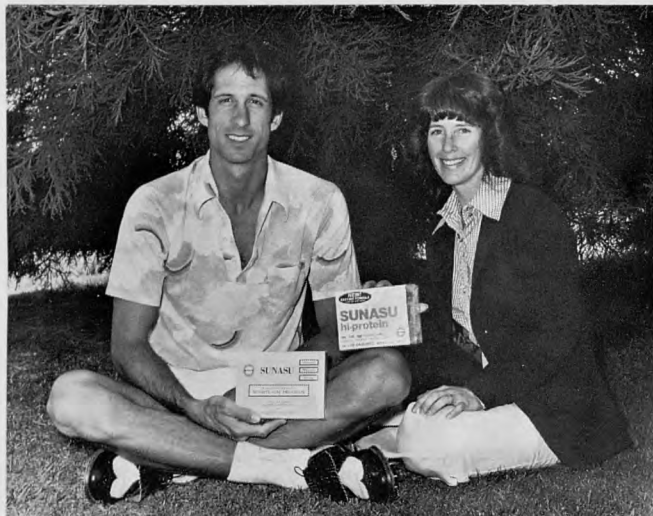
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|---------------------|-------------------------------|
| Odessa, Texas | Tucson, Arizona |
| Oxford, Ohio | West Chester, Pennsylvania |
| Pullman, Washington | Ann Arbor, Michigan |
| Raleigh, N.C. | New Britain, Connecticut |
| Cedar Falls, Iowa | (All sites subject to change) |

Deadline for requesting application forms:

December 15, 1980*

Deadline for returning application:

February 1, 1981*



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NATIONAL

June 7, 1981

National Convention Site: Fort Worth, Texas

(Subject to a maximum of 50 candidates — applications accepted in order of remittance-only 25 additional candidates accepted for written examinations. June and August applications are processed under the same deadlines).

August 2, 1981

Ann Arbor, Michigan

Cedar Falls, Iowa

Portland, Oregon

Oxford, Ohio

State College,

Pennsylvania

Las Vegas, Nevada

New Britain, Connecticut

Chattanooga, Tennessee

West Chester, Pennsylvania

Raleigh, North Carolina

(All sites subject to change)

Deadline for requesting applications forms:

March 15, 1981*

Deadline for returning application:

April 30, 1981*

Applications forms available from:

NATA Board of Certification

P.O. Drawer 1865

Greenville, N.C. 27834

(Please indicate date you wish to take the exam when requesting the application; also indicate the section under which you plan to apply: I-NATA Approved Curriculum, II-Apprenticeship, III-Special Consideration, IV-Physical Therapy).

NOTE: 1982 exam dates will approximate the 1981 dates and sites on a regional basis. The national exam will be at the site of the annual NATA convention with similar numerical limitations.

***All items must be received by the NATA Board of Certification Office by the specified deadline dates.**

A Timely Reminder . . .

Your contributions and continuing support to the NATA Scholarship Fund are always welcome and are necessary so that the endowment goal of \$500,000 can become a reality. Please remember that our program of financial assistance is a four-fold one that offers scholarships, loans, grants and part-time employment. Organizational support from the NATA to the Fund continues, but your individual contributions are vital to the Scholarship Fund's ultimate success. All contributions are tax deductible. Won't you consider now the importance of your participation in the NATA Scholarship Fund? Make your checks payable to Scholarship Program, and mail them to this address: **William E. Newell, Purdue University Student Hospital, West Lafayette, Indiana 47907.**

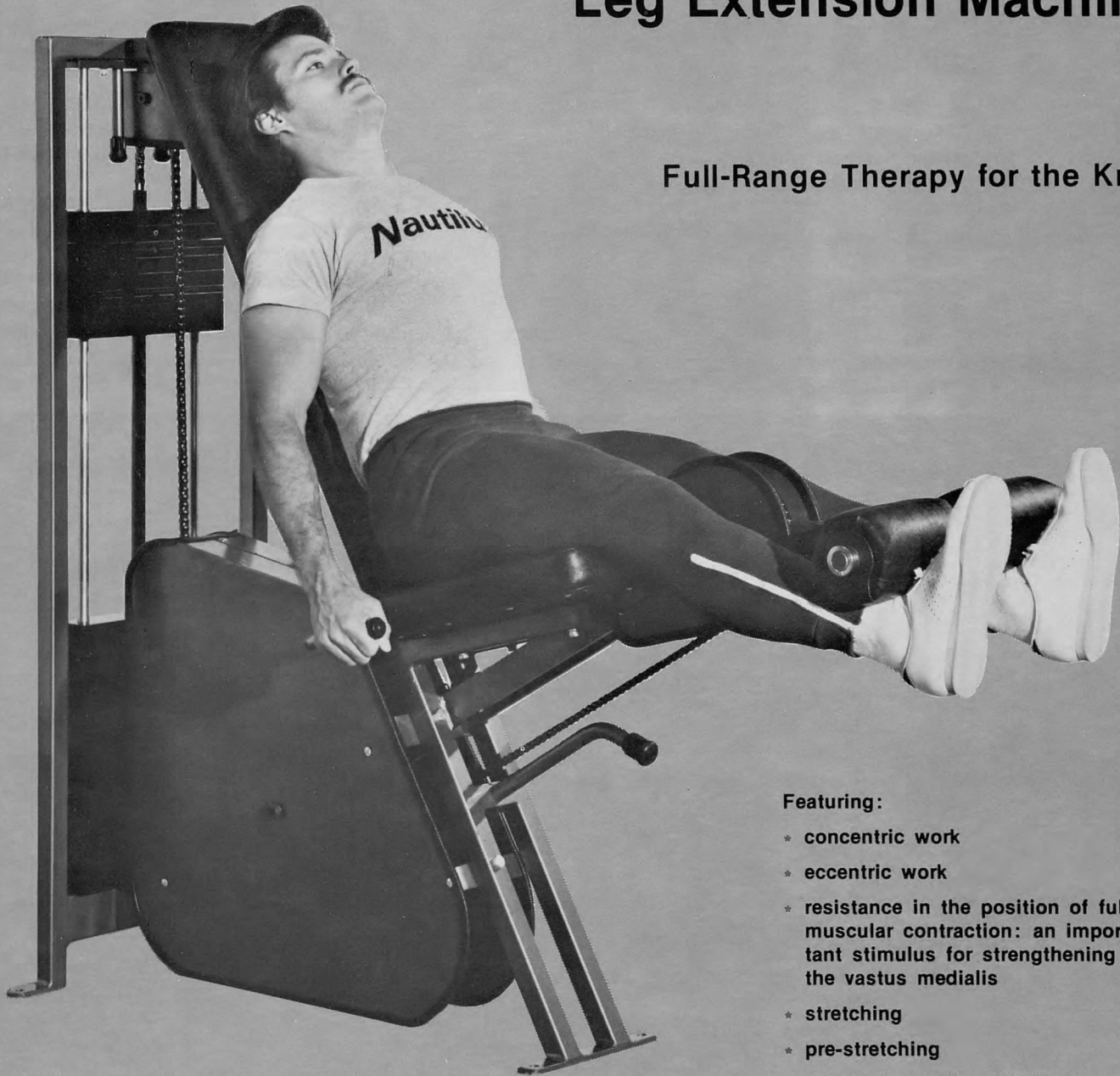
Brochure Requests

All requests for the brochure entitled "Careers in Athletic Training" should go to **Charles O. Demers, ATC, Chairman, NATA Career Information Services, Athletic Department, Deerfield Academy, Deerfield, MA 01342.** Single brochures are supplied upon request at no charge. NATA officers and committees, schools having an approved athletic training curriculum, and those having an apprenticeship program are furnished multiple copies of the brochure upon request at no charge. Others requesting multiple copies are asked to pay a charge at 10 cents per copy.

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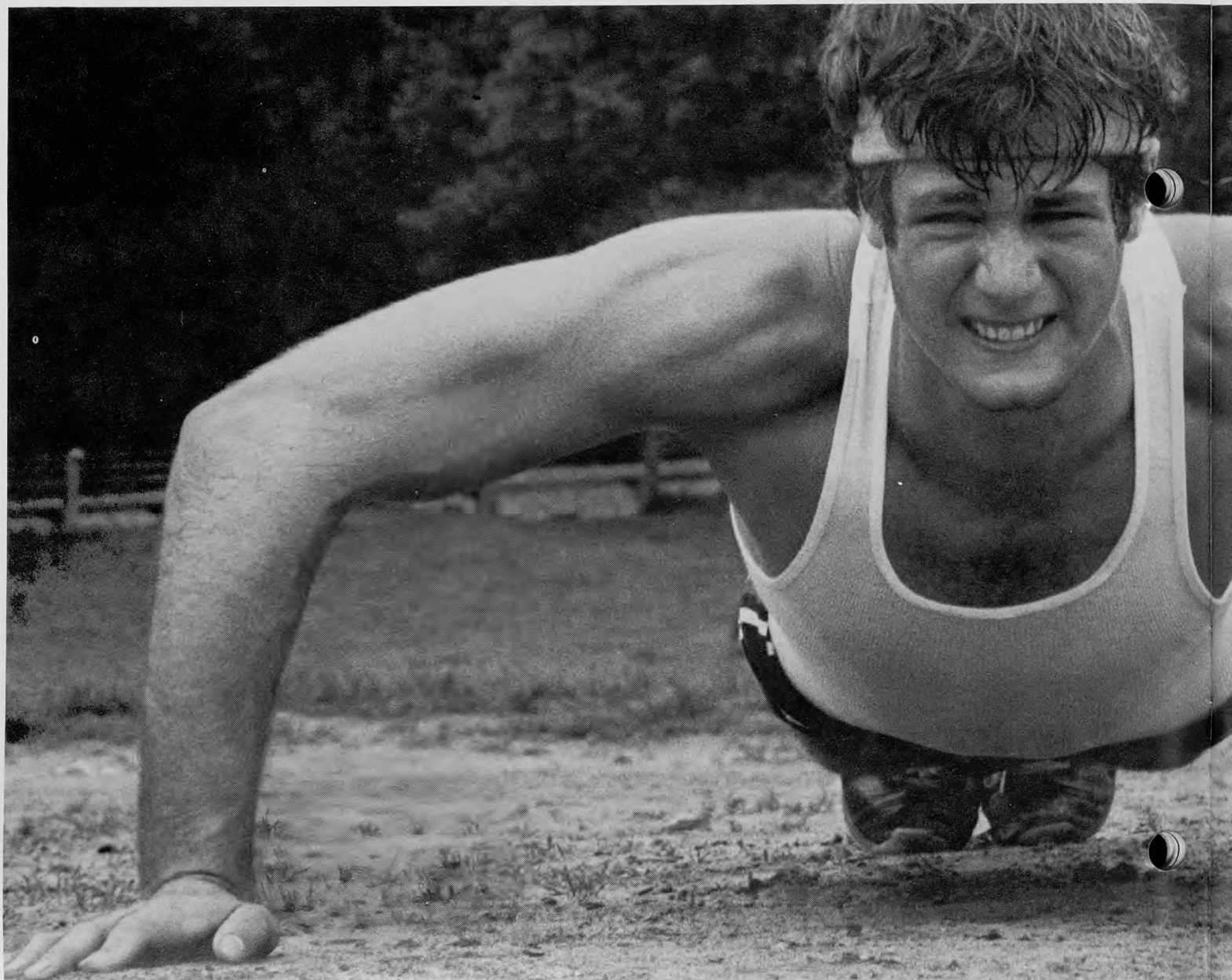
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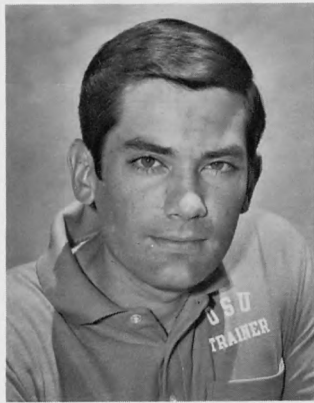


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Calendar of Events



Jeff Fair, ATC, MS
Oklahoma State University

January, 1981

9-11 The NATA's Sixth Professional Preparation Conference, Nashville, Tennessee. Contact Jack Redgren, Vanderbilt University, Nashville, Tennessee 37212.

10 University of Delaware's Twelfth Annual Medical Aspects of Sports Seminar, Newark, Delaware. Contact C. Roy Rylander, Athletic Department, University of Delaware, Newark, Delaware 19711.

16-17 The annual Senior Bowl Sports Medicine Seminar for physicians and other health related professionals. For more information contact: Director of Admissions and Records, United States Sports Academy, P.O. Box 8650, Mobile, Alabama 36608.

17 Nutrition and Competitive Athletics: A Conference for Coaches and Trainers, Berkeley, California. Contact Frank Lavorato, Alameda County Chapter, American Heart Association, 11200 Golf Links Road, Oakland, California 94605.

19-23 Sports Medicine Physical Therapy — Basic Course, Fort Lauderdale, Florida. Contact Ronald Peyton, Sports Medicine Education Institute, Inc., 20 Linden Ave. N.E., Suite 400N, Atlanta, Georgia 30365.

23-24 Baseball, Softball Sports Medicine Clinic, Wayne, New Jersey. Contact Tobias J. Barboza, Head Athletic Trainer, William Paterson College, 300 Pompton Road, Wayne, New Jersey 07470.

24 22nd AMA National Conference on the Medical Aspects of Sports, Atlanta, Georgia. Contact J.A. Bell, AMA, 535 North Dearborn, Chicago, Illinois 60610.

27-Bimonthly Greater Boston Sports Medicine Association meeting on "Arthroscopy — the State of the Art," Cambridge, Massachusetts. Contact William T. Bates, 733a Cambridge Street, Brighton, Massachusetts 02135.

31 1981 Metroplex Athletic Trainers Clinic, Duncanville, Texas. Contact David Burton, Duncanville High School, 900 West Camp Wisdom Road, Duncanville, Texas 75116.

31-Feb. 1 The FIRST ANNUAL BASEBALL SPORTS-MEDICINE SEMINAR, sponsored by Sports Injury Rehabilitation & Research Clinic, Inc., San Diego, California. Contact Byron Wildermuth, C/O Sports Injury Clinic, 8690 Aero Dr., Suite 10, San Diego, California 92123.

February, 1981

6-8 The NATA's Seventh Professional Preparation Conference, Pale Alto, California. Contact Gary Delforge, University of Arizon, Tucson, Arizona 85720.

9-13 Sports Medicine Physical Therapy — Basic Course, Tucson, Arizona. Contact Ronald Peyton, Sports Medicine Education Institute, Inc., 20 Linden Ave., NE, Suite 400N, Atlanta, Georgia 30365.

26-March 1 Vital Issues in Adult Health-Fitness programs, Houston, Texas. Contact William C. Day, The Houstonian, 111 North Post Oak Lane, Houston, Texas 77024.

March, 1981

2-6 1981 Sports Medicine Physical Therapy — Basic Course, Lake Tahoe, Nevada. Contact Ronald Peyton, Sports Medicine Education Institute, Inc., 20 Linden Ave., NE, Suite 400N, Atlanta, Georgia 30365.

8-15 Postgraduate Course in Sports Medicine, Maui, Hawaii. Contact Marianne Porter, Center for Sports Medicine, 2-063, 303 E. Chicago Avenue, Chicago, Illinois 60611.

21-22 14th Annual Sports Medicine and Conditioning Seminar sponsored by the Northwest Sports Medicine Foundation, The Sports Medicine Clinic, American Osteopathic Academy of Sports Medicine and Seattle Pacific University, Seattle, Washington. Contact Ken Foreman, Director of Education and Research, Northwest Sports Medicine Foundation, 1551 Northwest 54th, Suite 200, Seattle, Washington 98107.

24-Bimonthly Greater Boston Sports Medicine Association meeting on "The Developmental Aspects of Cardiac Intervention and Cardiac Rehabilitation Programs. Contact William T. Bates, 733a Cambridge Street, Brighton, Massachusetts 02135.

28 6th Annual Sports Medicine Symposium sponsored by the University of Cincinnati Department of Orthopaedic Surgery and the University of Cincinnati Athletic Department, Cincinnati, Ohio. Contact Frank R. Noyes, or Susan E. Genuario, University of Cincinnati, Sports Medicine Institute, 3rd Floor of Cincinnati General Hospital, 234 Goodman Avenue, Cincinnati, Ohio 45267.

April, 1981

23-24 As part of the Penn Relays track & field meet a course entitled the Medical Aspects of Jogging, Running and Aerobic Exercise will be sponsored by the Department of Orthopaedic Surgery and the Sports Medicine Center at the University of Pennsylvania. Contact Nancy Wink, CME Program Director, University of Pennsylvania School of Medicine 19104.

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 74078.**

Third Annual NATA Student Writing Contest

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

1. This contest is open to all undergraduate student members of the NATA.
2. Papers must be on a topic germane to the profession of athletic training and can be case reports, literature reviews, experimental reports, analysis of training room techniques, etc.
3. Entries must not have been published, nor be under consideration for publication by any journal.
4. The winning entry will receive a \$100.00 cash prize and be published in *Athletic Training* with recognition as the winning entry in the Annual Student Writing Contest. One or more other entries may be given honorable mention status.
5. Entries must be written in journal manuscript form and adhere to all regulations set forth in the "Guide to Contributors" section of this issue of *Athletic Training*. It is suggested that before starting students read: Knight KL: Writing articles for the journal. *Athletic Training* 13:196-198, 1978. NOTE: A reprint of this article, along with other helpful hints, can be obtained by writing to the Writing Contest Committee Chairman at the address below.
6. Entries must be received by March 1. Announcement of the winner will be made at the Annual Convention and Clinical Symposium in June.
7. The Writing Contest Committee reserves the right to make no awards if in their opinion none of the entries is of sufficient quality to merit recognition.
8. An original and two copies must be received at the following address by March 1, 1981.

NATA Student Writing Contest
c/o Dr. Ken Knight
Men's Physical Education
Indiana State University
Terre Haute, Indiana 47809

Current Literature



Ed Christman, ATC, MEd
College of William and Mary

"Bicycling Injuries," Davis, M. *The Physician and Sportsmedicine*, 4015 West 65th Street, Minneapolis, Minnesota 55435. 8(5):88, May, 1980.

"Body Perception in Athletes and Non-Athletes," Rossi, B. et al. *Perceptual and Motor Skills*, P.O. Box 9229, Missoula, Mt. 59807. 49(3):723-6, December, 1979.

"Cardiovascular Stress Associated with the Recreational Tennis Play of Middle-Aged Males," Misner, J.E. et al. *American Corrective Therapy Journal*, Sutton Hall 107, Austin, Texas 78712. 34(1):4-8, January-February, 1980.

"Delayed Menarche in Young Women Athletes," Ryan, A.J. *Postgraduate Medicine*, 4530 W. 77th St., Minneapolis, Minn. 55435. 67(3):52-3, March, 1980.

"Early Confirmation of Stress Fractures in Joggers," Norfray, J. et al. *Journal of the American Medical Association*, 535 N. Dearborn St., Chicago, Illinois 60610. 243 (16):1647-9, April, 1980.

"Echocardiographic Left Ventricular Masses in Distance Runners and Weightlifters," Longhurst, J. et al. *Journal of Applied Physiology*, 9650 Rockville Pike, Bethesda, Maryland 20014. 48(1):154-62.

"Elevated High-Density Lipoprotein Levels in Marathon Runners" Adner, M. et al. *Journal of the American Medical Association*. 243(6):534-6, February, 1980.

"Epidural Cortisone Injections in the Young Athletic Adult," Jackson D., Rettig, A., and Wiltse, L. *The American Journal of Sports Medicine*, 428 East Preston Street, Baltimore, Maryland 21202. 8(4):239, July-August, 1980.

"Fitting of Protective Football Equipment," Giech, J. and McCue, F. *The American Journal of Sports Medicine*, 8(3):192, May-June, 1980.

"Ulittibial Band Friction Syndrome in Runners," *The American Journal of Sports Medicine*, 8(4):232, July-August, 1980.

"Impingement Syndrome in Athletes," Hawkins, R., and Kennedy, J. *The American Journal of Sports Medicine*, 8(3):151, May-June, 1980.

"Injuries to Young Athletes," Committee on Pediatric Aspects of Physical Fitness, Recreation, and Sports. *Pediatrics*, Box 1034, Evanston, Ill. 60204. 65(3):649, March, 1980.

"In-Season Strength Training," Ganong, R. and Ziccardi, N. *Athletic Journal*, 1719 Howard St., Evanston, Illinois, 61(1):46, September, 1980.

"Preventing Dancers 'Injuries'," Gelabert, R. *The Physician and Sportsmedicine*, 8(4):69, April, 1980.

"Review of Physical Therapy Alternatives for Reducing Muscle Contracture," Cherry D. *Physical Therapy*, 60(7):877, July, 1980.

"Riding to Death," Krosnick, A. *Journal of the Medical Society of New Jersey*, 77(1):13, January, 1980.

"Sports Injuries on the Local Level," Danyo, J. *Pennsylvania Medicine*, 20 Erford Road, Lemogne, Pa. 17043. 82(12):23.4, December, 1979.

"Sports Injury and Osteoarthritis," Adams, I. *Practitioner*, 5 Bentinch St., London W.1, England. 224(1339):61, January, 1980.

"Taping the 'Athletic Ankle'," Bullard, R. H. et al. *Journal of the American Podiatry Association*, 20 Chevy Chase Circle, N.W., Washington, D.C. 20015. 69(12):727-34, December, 1979.

"Tennis: the Effects of Grip Firmness on Ball Velocity after Impact," Watanabe, T. et al. *Medicine and Science in Sports*, 1440 Monroe St., Madison, Wis. 53706. 11(4):359-61, Winter, 1979.

"Tennis Elbow Syndrome: Results of the 'Lateral Release' Procedure," Rosen, M.J. et al. *Ohio State Medical Journal*, 600 High St., Columbus, Ohio 43215. 76(2):103-9, February, 1980.

"Tennis Elbow, the Surgical Treatment of Lateral Epicondylitis," Gunn, C. *American Journal of Bone and Joint Surgery*, 10 Shattuck St., Boston, Mass. 02115. 62(2):313, March, 1980.

"Testing Anterior Cruciate Ligaments," Knight, K. *The Physician and Sportsmedicine*, 8(5):135, 1980.

"That Plateau in Your Bench Press," Riley, D. *Scholastic Coach*, 50 W. 44th St., New York, NY 10036. 50(3):66, October, 1980.

"The Elbow and Tennis, Part 1: An Analysis of Players With and Without Pain," Priest, J. *The Physician and Sportsmedicine*, 8(4), April, 1980.

"The Elbow and Tennis, Part 2: A Study of Players with Pain," Priest, J. *The Physician and Sportsmedicine*, 8(5):77, May, 1980.

"The Relationship of Motor-Unit Activation to Isokinetic Muscular Contraction at Different Contractile Velocities," Barnes, W., *Physical Therapy*, 1156 15th Street N.W., Washington, D.C. 20005. 60(9):1152, September, 1980.

"The Role of the Podiatrist as First Point Practitioner in Sports Medicine," McGregor, R. *Journal of the American Podiatry Association*, 70(1):54-7, January, 1980.

"The Shoulder in Competitive Swimming," Richardson, A., Jobe, F., and Collins, H. *The American Journal of Sports Medicine*, 8(3):159, May-June, 1980.

"Transmissiveness of Ultrasound Through Tap Water, Glycerin, and Mineral Oil," Griffin, J. *Physical Therapy*, 60(8):1010, August, 1980.

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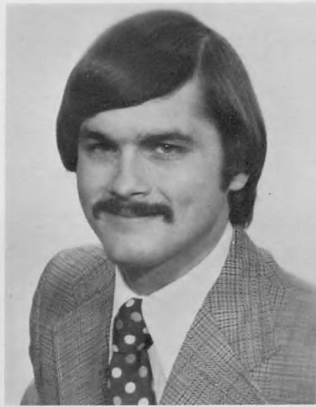
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Book Reviews



BOOK REVIEW EDITOR
Don Kaverman, ATC, MA

Sports for Life: Fitness Training, Injury, Prevention and Nutrition

By Robert Buxbaum, MD and Lyle J. Micheli, MD
List Price: \$5.95
204 Pages
Beacon Press
25 Beacon Street
Boston, MA 02108
1979

Two physicians with a commitment to exercise have written this book dedicated to those people who wish to become more active and at the same time wish to avoid injuries on their road to fitness. It was not intended to be a textbook but is a guide providing basic information to help one reach one's own personal fitness goals. This book is divided into three sections.

Part I, Body Basics, has chapters on Lifetime Fitness and Sports, Training your Heart, Muscles and Joints, Eating for Fitness and Sports, and Reducing the Chance of Injury. The authors contend that a thirty minute three day a week investment can serve as the basis for significantly improved C.V. performance. They also suggest that women can safely follow the same guidelines for fitness training as men using specificity, overload, rest and slow progressive training. They propose that a minimally well trained heart can be achieved in six to fifteen weeks, using any of the following flexible workouts: sixty one minute periods, twelve five minute periods, four fifteen minute periods or a one hour long workout. They conclude that warm up and cool down phases of five to ten minutes walking and/or running are highly beneficial and they recommend against workouts during a fever, just after eating and workouts in extreme temperatures. In the chapter on Reducing Injury they give a very brief bird's eye view of first aid, and problems relating to bones, muscles, tendons, joints (including back), head, eyes, mouth, heat, cold (frost bite) and lightning.

Part II is on Life Sports with chapters on Walking, Hiking and Running; Tennis and other Racket Sports; Swimming; Downhill and Cross Country Skiing; Bicycling; Canoeing, Kayaking and Rowing; Team Sports of Football, Rugby, Soccer, Basketball, Baseball and Softball; Ice Hockey and Skating; and New Games, Dancing and Workplace Exercise. At the front of each chapter they have a chart depicting energy consumption (i.e. slow walking 1m/hr = 135 cal/hr), strengthening effect (i.e. Calf musculature) and stretching exercises (i.e. low back, trunk & hamstring) for each sport discussed except for New Games & Dance.

Part III, Fitness for Everyone, discusses Changing our Sedentary Life Style and a chapter on Age, Asthma,

Continued on page 264.

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THE SPORT OF GIVING

**Giving and caring are all in the game—
and the work—of the \$3 million National Football
League Charities foundation.**

By Jim Natal

Early on the Saturday morning before Super Bowl XIV last January, a meeting took place at the Century Plaza Hotel in Los Angeles. The meeting was unpublicized, and its purpose was such that football fans might have given it scant attention, with the biggest game of the season only 24 hours away. Yet, in national significance and impact, that quiet gathering of seven people was every bit the equal of the Super Bowl.

It was the first of two yearly meetings of the board of directors of NFL Charities. By the end of the second session, in June, more than \$600,000 had been allocated for worthy causes, raising the seven-year grant commitment total to nearly \$3 million.

Like so many organizations doing important work, NFL Charities works quietly but effectively, with little fanfare. Many of its donations, in fact, never have been announced publicly. Charities, the first and only charitable foundation to be established by a professional sport, was the brainchild of NFL Commissioner Pete Rozelle. Conceived in 1972, it was incorporated in 1973 and began dispensing grants in 1974.

"During the early 1970s," says Rozelle, "we started airing public service messages—such as our United Way spots—on league telecasts. They were received so well, I felt we could establish a charity fund to do even more good work—in effect, to pay back all the fan



NFL Charities board of directors: (clockwise from front left) Ethel Kennedy, Lowell Perry, David Mahoney, Lamar Hunt, Jack Kemp, Pete Rozelle; (inset) George Halas.

support we receive and make improvements for society as a whole in the name of professional football. I broached the idea to the clubs at a league owners' meeting and the response was favorable."

After that meeting, the club owners agreed to contribute more than \$300,000 to get NFL Charities established. Most of that money came from team revenue earned as members' shares of National Football League Properties, Inc. (NFLP), the league's retail licensing, marketing, and publishing arm.

New England Patriots owner William H. (Billy) Sullivan, now the chairman of the NFLP Executive Committee, was at the owners' meeting at which the formation of NFL Charities was first discussed. "The idea for starting NFL Charities wasn't approved the minute the commissioner put it on the table," Sulli-

van says. "Most of the clubs already were heavily involved in local charity organizations and they weren't convinced that being involved nationally on a group basis would be more productive. But, using the monies generated by Properties turned out to be a painless way of working nationally while still allowing the teams to fulfill their individual obligations to local causes. Eventually the formation of Charities was agreed to. Now, I think it's quite an achievement, and the owners are happy with its development and the way it is being run. Pete's baby has grown up to be a very healthy child.

"Over the years," Sullivan adds, "through my work with Charities and other organizations, I've really come to find how true my old grandmother's favorite adage was: 'Tis more blessed to give than receive.'"

In that spirit, Sullivan, on behalf of NFLP, presented NFL Charities with a check for \$567,000 last April. That brings NFLP's total contribution since 1973 to nearly \$3 million. "Needless to say, we all are very proud of this contribution made on behalf of the NFL's member clubs to the worthy causes included in NFL Charities' domain."

One of the unique aspects of NFL Charities is the distinguished personnel of its board of directors. The board is exceptionally well-balanced, and, within its football-oriented framework, con-

Michael Zagars

tains representatives of varying backgrounds and philosophies. Rozelle is president of the board and chairs the meetings. The other members include George Halas, president of the National Football Conference; Lamar Hunt, president of the American Football Conference; Ethel Kennedy, widow of the late Senator Robert Kennedy; Jack Kemp, a former NFL quarterback, now a Congressman from upstate New York; Lowell Perry, who played for the Pittsburgh Steelers, went on to become a Chrysler Corporation executive, and now owns his own corporation in Detroit; and David Mahoney, chairman of the board of Norton Simon, Inc.

The committee members all were selected by Rozelle. "I felt it advisable," explains the commissioner, "that it not be a totally NFL-oriented fund. The members were chosen partially for their interest in football, but more for their expertise in other areas that could be helpful to our work.

"Halas and Hunt, as representatives of the league owners and the presidents of the two conferences, were immediate selections. Kemp is a former president of the AFL Players Association, and, as a Congressman, was selected for his familiarity with many of the activities we would be pursuing. Perry is a former player who chose a corporate career. Ethel is very knowledgeable and involved in a number of charities, including her own foundation, the Robert F. Kennedy Memorial. David Mahoney also is extremely active in charity work and serves on the boards of several foundations."

The two Charities board meetings each year are cordial affairs. Once they're brought to order, however, they are strictly business, the board members pursuing the stated goals of dispensing funds.

"We're proud of our record," says Ethel Kennedy. "People come to board meetings having studied the grant proposals carefully and having given them good thought. They care enough to come prepared."

NFL Charities grants fall into three general categories, as set forth in its original guidelines: medical research and the combating of disease; support of education; and promotion of good health, good will, and physical education. Interestingly, a report presented last June by board secretary (and assistant to the president of the NFC) Joe Rhein, revealed that during its seven years of operation, the grants disbursed by Charities have been given in almost equal proportions in the three areas. The same percentage of sup-

NFL Charities Grants

	1980	Total Since 1974
1. NFL Alumni Foundation Fund	\$100,000	\$580,000
2. United Negro College Fund	25,000	205,000
3. No Greater Love	—	35,000
4. National Children's Oncology (1974 and 1975 grants made in former name of Leukemia Wing of Children's Hospital of Philadelphia)	—	70,000
5. National Drug Enforcement Poster Program	—	10,000
6. National Football Foundation and Hall of Fame	15,000	110,000
7. Pro Speakout	—	10,000
8. Direction Sports	20,000	40,000
9. United Leukemia Fund	—	5,000
10. National High School Athletic Coaches Meeting	—	12,400
11. Troubled Children's Foundation	—	45,000
12. Brian Piccolo Fund/Sloan Kettering Hospital	—	60,000
13. National Athletic Health Institute	—	40,000
14. Drug Abuse Pamphlet Program	—	18,222
15. United Way	25,000	105,000
16. The Student House	—	15,000
17. Kelly Forehand Fund	—	5,000
18. U. S. Olympic Committee	—	25,000
19. American Health Foundation	—	45,000
20. The New Direction	—	20,000
21. Roswell Park Memorial Fund	—	20,000
22. American Indian Lawyer Training Program	25,000	70,000
23. Tom Beutler Fund	—	10,000
24. United Scholarship Service	—	5,000
25. Orthopedic Surgery & Sports Medicine Program	—	45,000
26. Jesuit Program for Living & Learning	25,000	75,000
27. U.S. Collegiate Sports Council	—	25,000
28. Big Brothers/Big Sisters of America	10,000	50,000
29. Fellowship of Christian Athletes	25,000	45,000
30. Ohio University Scholarships	—	10,000
31. Arthritis Foundation	—	10,000
32. Braille Sports Foundation	—	10,000
33. Children's Heart Hospital	—	10,000
34. National Indian Activities Association	—	10,000
35. Providence Hospital/ Southfield, Michigan	—	10,000
36. National Athletic Trainers Association	5,000*	20,000
37. United Leukemia Fund Film	—	1,021
38. George Halas Scholarship Fund	—	10,000
39. Howard University & Clark College Scholarships	10,000	30,000
40. U.S. Association of Blind Athletes	—	20,000
41. U S O	20,000**	25,000
42. Vincent Lombardi Cancer Center at Georgetown	100,000***	200,000
43. Arizona Heart Institute	—	20,000
44. Athletic Institute	12,000	32,000
45. Paraplegia Cure Research	—	20,000
46. Pro Athletes Outreach-Winning With Christ	—	20,000
47. American Humanics	10,000	20,000
48. Pop Warner Little Scholars, Inc.	—	5,000
49. Walter Camp Papers at Yale	5,000	10,000
50. Myasthenia Gravis Foundation	25,000	25,000
51. Bruce Rice Scholarship Fund (University of Missouri)	5,000	5,000
52. Urban League	50,000	50,000
53. Elma Lewis School of Fine Arts	10,000	10,000
54. National Operating Committee on Standards for Athletics	10,000	10,000
55. Red Grange Archives and Heritage Gallery	10,000	10,000
56. Up With People	25,000****	25,000
	\$567,000	\$2,428,643

*\$20,000 committed over 4 year period at \$5,000 per year.

**\$100,000 committed over 5 year period at \$20,000 per year.

***\$1,000,000 committed over 10 year period at \$100,000 per year.

****\$100,000 committed over 4 year period at \$25,000 per year.

NFL Charities contributions, total per year 1974-79: 1974, \$162,400; 1975, \$220,722; 1976, \$295,000; 1977, \$401,021; 1978, \$237,500; 1979, \$545,000.

port also is given to the National Football League Alumni Foundation, which provides assistance to former professional football players who are no longer able to support themselves.

An organization seeking an NFL Charities grant must make application well in advance of a board meeting and, if given a grant, must provide information to the board on exactly how the grant was utilized. Whenever possible, the recipient of a grant is asked to try to obtain matching funds from other sources. In some cases, grants are made conditional to matching funds being found.

While special consideration is given to applicants with some football or sports affiliation, or organizations supported by club owners, teams, or players, the decisions of the board are made with complete objectivity.

"We never have had any pressure or lobbying from anyone in the league to support his or her particular charity," says Mahoney. "The board is truly independent. We recognize our responsibilities to football and the original goals of NFL Charities, but our main responsibility is to see that the work of Charities is done and done correctly.

"Certainly any charity, foundation, or fund exists to spend money for the public good. What is unique here is that this represents football's responsibility to the community. The fund has grown as football has prospered. This is Pete's and the owners' way of reciprocating."

Mahoney also considers NFL Charities unique in another way. "We have almost no overhead expenses," he says. "Virtually one hundred cents of every dollar we receive goes to charity. That's often not the way it is with other charitable organizations."

And, according to board treasurer (and assistant to the president of the AFC) Al Ward, "While our assets went up last year, our expenses actually went down."

For 1980, NFL Charities made 23 grants totaling \$567,000, both highs. With this figure, total grants to date, including long-term commitments, have surpassed the \$3 million mark. The largest commitment so far was made in 1979—\$1 million over a 10-year period to the Vincent Lombardi Cancer Research Center of Georgetown University (see story on page 12C). This larger grant was in keeping with newly emerging attitudes of the board.

"We reached a consensus of sorts at one of our prior meetings," says Lowell Perry. "We decided to make some of the grants larger and more meaningful rather than making only a number of smaller

grants. We took a big step in that direction with the Lombardi Cancer Research Center commitment."

The 23 grants made this year include continuing support of organizations such as the Lombardi Center, the Jesuit Program for Living and Learning, the National Athletic Trainers Association, the United Negro College Fund, and the American Indian Lawyer Training Program, as well as to seven organizations that had never before received NFL Charities grants.

Other grants, still under study, are being considered for organizations working in the field of prevention, rehabilitation, and cure of spinal cord injuries, which may account for as much as 20 percent of all sports-related injuries. Under investigation are new techniques such as nerve fiber regeneration and a "cooling collar" mechanism, which can slow the spread of paralysis.

The seven new grant recipients include: the Myasthenia Gravis Foundation, a research fund to combat the neuromuscular disease that afflicted former Los Angeles Rams star Lamar Lundy, is troubling former Baltimore Colts and New York Jets head coach Weeb Ewbank, and is suspected of contributing to the death of former Washington Redskins player Gene Brito; the Bruce Rice Scholarship Fund at the University of Missouri, a journalism scholarship named for the popular late Kansas City sportscaster; the Urban League, an organization dedicated to easing the entry of blacks into higher levels of employment; the Elma Lewis School of Fine Arts, the teaching arm of the National Center of Afro-American Artists in Boston; the Red Grange Archives and Heritage Gallery, a new museum in Grange's hometown of Wheaton, Illinois, housing 5,000 items of Grange memorabilia; Up With People, the motivational youth organization that performed spectacular halftime shows at Super Bowls X and XIV; and the National Operating Committee on Standards for Athletics, an organization formed in 1969 to formulate voluntary safety standards for athletic equipment.

All people involved with NFL Charities expect to see further increases in the size and number of grants it will be able to make in the future.

"What matters in all this," says venerable board member George Halas, "is not any public credit. Doing this from the heart is what counts." ■

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STATEMENT OF OWNERSHIP MANAGEMENT AND CIRCULATION

(Required by 38 U.S.C. 3685)

Date of Filing: December 1, 1980
Title of Publication: ATHLETIC TRAINING, The Journal of the National Athletic Trainers Association (NATA)
Frequency of Issues: Quarterly
Location of Known Offices: 112 South Pitt Street, P.O. Drawer 1865, Greenville, North Carolina 27834
Editor: Kenneth Wolfert, Miami University, Oxford, 45056
Managing Editor: Clinton B. Thompson, Michigan State University, East Lansing, Michigan 48824

Owner: National Athletic Trainers Association, 112 South Pitt Street, Greenville, North Carolina 27834
Known bondholders, mortgages, and other security holders owning or holding one (1) or more of total amount of bonds, mortgages or other securities: None

Extent and Nature of Circulation
Total No. copies Printed (Net press run) 7,500
Paid Circulation
Dealers, carriers, vendors, counters 0
Mail subscription 7,300
Free Distribution
Samples, comps, etc. 100
Dist. to news agents but not sold 0
Total Distribution 7,400
Office use, left-over, spoiled, unaccounted 100
Returns from news agents 0
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1979 MEMBERSHIP SURVEY

The membership survey has been conducted in the past few years to provide information which the Association can use for planning purposes. The 1979 survey was sent out in October and the results were computed in April of this year. There was a 48.4% return overall with a 52.6% return from the certified members and a 36.2% return from the associate members.

In a future article the results of this survey will be compared with the surveys of '73 and '77 to determine the extent of changes which have occurred. Comments,

questions, or requests for a copy of this survey should be directed to:

John W. Powell, PhD, ATC, Chairman
Research and Injury Committee
The Pennsylvania State University
131 White Building
University Park, PA 16802

We wish to thank the membership for their cooperation in completing this survey.

SUMMARY

Total Members 3039 (2312 Certified) (727 Associate)
Return 1470 (1217 Certified) (263 Associate)
% Return 48.4 (52.6% Certified) (36.2% Associate)

Column Key

- A Total membership
- B Certified Membership
- C Associate membership
- D Female trainer
- E High school trainer
- F College trainer
- G Professional trainer

Question

All Expressed in % of Total

Question	A	B	C	D	E	F	G
1. Membership Classification							
a. Certified	81.9	—	—	17.6	18.2	41.5	4.9
b. Associate	17.7	—	—	3.2	8.5	4.0	1.3
2. Sex of Member							
a. Male	78.7	64.2	14.3	—	21.7	35.9	5.9
b. Female	21.0	17.6	3.2	21.0	4.8	9.7	0.3
3. Present Position							
a. Unemployed	3.5	3.0	0.5	1.7			
b. High School	26.7	18.2	8.5	4.8			
c. Junior College	4.2	3.0	1.2	1.3			
d. College	45.5	41.5	4.0	9.7			
e. Professional Club	6.2	4.9	1.3	0.3			
f. Clinic	4.8	4.2	1.3	2.4			
g. Other	8.1	6.8	1.3	2.4			
4. Staff Level							
a. Head Trainer	58.7	49.0	9.6	7.2	21.2	27.1	4.5
b. Assistant Trainer	14.7	12.7	2.0	5.1	0.9	1.0	1.2
c. Trainer and Coach	4.3	2.2	2.1	1.5	2.6	1.1	0.1
d. Full Time Training Education	2.7	2.2	0.5	0.5	0.3	1.7	0.0
e. Other	14.1	11.3	2.8	4.2	1.4	3.3	0.3
5. Term of Employment							
a. 6 Months or Less	4.3	3.6	0.7	2.3	1.7	0.7	0.5
b. 9 Months	18.6	14.9	3.7	5.2	6.1	10.1	0.9
c. 10 Months	26.6	20.9	5.7	6.2	11.9	12.0	1.0
d. 11-12 Months	37.4	32.9	4.4	4.4	4.6	20.6	2.2
e. Other	7.4	5.1	2.2	1.7	1.8	1.8	2.2

6. Employment Status							
a. Full Time Trainer/ No Teaching	21.2	17.4	3.8	3.6	2.8	11.2	5.0
b. Full Time Trainer/ Teaching Required	22.3	20.3	2.1	2.8	7.1	14.1	0.1
c. Full Time Trainer/ Teaching Optional	10.2	9.2	0.9	1.7	0.8	7.7	0.3
d. Full Time Teacher/ Training Required	6.3	5.0	1.3	0.9	4.1	1.8	0.0
e. Full Time Teacher/ Training Optional	7.2	3.9	3.3	1.7	5.2	1.3	0.0
f. Full Time Teacher/ No Training	2.1	1.7	0.3	0.7	0.5	0.9	0.0
g. Part Time Trainer/ Teacher	5.5	4.4	1.1	1.6	2.1	2.5	0.0
h. Part Time Trainer	7.3	5.7	1.5	2.3	2.1	2.7	0.3
i. Other	13.5	10.4	2.8	4.0	0.9	2.9	0.5
7. Highest Degree Earned							
a. Bachelor	35.4	26.6	8.5	7.8	11.5	11.4	2.7
b. Master	54.7	48.3	6.3	12.4	13.9	29.5	2.5
c. Doctorate	2.7	2.5	0.2	0.3	0.1	2.2	0.0
d. Other	5.1	3.4	1.7	0.5	0.8	1.8	0.4
e. No Degree	2.0	1.1	0.9	0.0	0.3	0.7	0.7
8. Allied Education							
a. Physical Therapist	13.8	11.8	2.0	2.0	1.1	6.3	0.9
b. Chiropractor	0.3	0.2	0.0	0.1	0.0	0.1	0.0
c. Podiatrist	0.1	0.1	0.0	0.0	0.0	0.0	0.0
d. Combination of Above	0.3	0.2	0.1	0.1	0.2	0.1	0.0
e. EMT	14.5	11.5	2.9	3.2	4.1	6.8	0.7
f. Corrective Therapist	2.6	1.5	0.1	0.2	0.3	0.7	0.1
g. Nurse	5.5	3.9	1.5	0.8	1.2	2.2	0.6
H. Other	1.1	10.0	2.4	3.9	3.6	5.7	0.2
9. Undergraduate Major							
a. Health Education	5.4	4.8	0.5	0.8	1.8	1.7	0.4
b. Physical Education	49.9	42.0	7.7	11.6	11.9	25.4	3.4
c. Science Life/Physical	5.7	5.0	0.7	0.4	1.2	3.0	0.3
d. Education	3.0	2.0	1.0	0.4	1.3	0.9	0.3
e. Allied Health Profession	4.4	3.6	0.7	1.0	0.8	1.5	0.1
f. Other	7.3	5.4	1.8	1.2	1.9	3.4	0.1
10. Experience as a College Student Trainer							
a. None	12.9	7.7	5.2	2.4	5.1	5.1	0.8
b. Less Than 2 Years	11.1	7.9	3.2	3.2	3.1	4.5	0.5
c. 2-3 Years	33.1	28.9	4.0	10.8	7.8	15.7	1.8
d. 4-5 Years	37.5	32.7	4.6	4.3	10.0	17.4	2.6
e. 6 or More	4.3	3.8	0.5	0.1	0.4	2.3	0.4
11. Route to Certification							
a. Grandfather	19.4	18.4	0.7	0.3	3.2	11.4	2.3
b. Graduate of Approved Curriculum	27.9	25.3	2.4	10.3	8.3	11.3	0.9
c. Apprenticeship	32.2	28.4	3.6	7.3	7.5	16.1	1.6
d. Physical Therapist	6.3	5.3	1.0	1.1	0.7	2.6	0.3
e. 5 Years Experience (Special)	6.9	3.6	3.4	0.5	3.1	2.8	0.2
f. Faculty Instruction Program	1.9	0.6	1.3	0.8	1.3	0.4	0.0
12. Immediate Supervisor							
a. Physician	18.8	14.7	4.0	1.7	4.0	7.1	2.7
b. Dean/Dept. Head/ Principal	12.7	11.0	1.7	2.8	4.2	7.0	0.0
c. Athletic Director	37.6	30.6	6.8	6.2	15.3	18.6	0.1
d. Coach	2.1	1.6	0.5	0.1	0.9	0.2	0.7
e. Head Trainer	17.3	14.4	2.7	6.3	1.2	11.6	1.4
f. Other	5.5	4.2	1.1	1.5	0.5	0.7	0.8

13. Years Experience as Supervisor of Students							
a. None	11.1	8.7	2.4	3.9		2.5	1.1
b. 1-2 Years	18.6	16.2	2.4	6.4	4.8	8.5	0.7
c. 3-5 Years	24.3	19.8	4.4	6.7	6.9	11.8	0.7
d. 6-10 Years	16.7	15.4	3.3	1.3	4.2	10.3	1.3
e. 11-15 Years	9.0	7.4	1.5	0.1	1.9	5.2	0.9
f. 16 or More Years	9.6	8.5	1.0	0.1	2.2	5.4	0.7
14. Number of Non-Student Athletic Training Staff							
a. No Other Staff	44.8	34.8	10.0	7.6	19.0	15.8	2.4
b. 1-2	28.9	24.0	4.7	5.7	5.6	15.7	3.0
c. 3-4	10.7	9.9	0.8	2.4	0.6	8.7	0.2
d. 5-6	3.4	3.1	0.3	0.8	0.3	2.7	0.0
e. 7-8	1.4	1.3	0.1	0.5	0.1	1.2	0.1
f. 9 or More	0.5	0.3	0.1	0.1	0.1	0.1	0.0
15. Number of Student Trainers Preparing for Certification That You Have Under Your Direct Supervision							
Curriculum							
a. 1-4	8.0	6.5	1.4	2.0	2.0	3.8	0.5
b. 5-9	5.1	4.8	0.3	1.2	0.5	4.0	0.0
c. 10-14	2.5	2.5	0.0	0.7	0.0	2.3	0.1
d. 15-19	1.5	1.4	0.1	0.1	0.1	1.4	0.0
e. 20 or More	2.2	2.1	0.1	0.5	0.1	1.9	0.0
Apprentice							
a. 1-4	27.2	24.7	2.4	4.9	5.3	17.0	1.1
b. 5-9	5.9	5.7	0.2	0.9	0.4	5.2	0.0
c. 10-14	2.9	2.0	0.0	0.3	0.3	2.4	0.1
d. 15-19	0.7	0.7	0.0	0.1	0.0	0.6	0.0
e. 20 or More	0.7	0.7	0.0	0.1	0.0	0.6	0.1
16. Malpractice/Liability Insurance Carried							
a. None	26.2	20.7	5.2	6.3	7.2	10.4	1.7
b. Paid by Employer	42.7	35.7	6.9	8.4	11.2	21.7	3.4
c. Paid by Self	22.8	18.7	4.0	3.8	6.3	10.4	0.8
d. Both	4.0	3.4	0.7	0.8	1.5	1.8	0.3



Journal Deadlines

In order to avoid confusion and delays for any contributions you have for the Journal the deadlines for various sections of the Journal are provided below.

Send all materials for any selection of the Journal other than formal articles and "Calendar of Events" to:

Ken Wolfert
Miami University
Oxford, OH 45056

This includes sections such as "Tips From the Field", "Announcements", "Case Studies", "Letters to the Editor", etc. The deadlines are:

Journal	Deadline
Fall Issue	July 15
Winter Issue	October 15
Spring Issue	January 15
Summer Issue	March 15

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

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

Fall Issue	July 15
Winter Issue	October 15
Spring Issue	January 15
Summer Issue	April 1

Manuscripts must be sent to:

Clint Thompson
Jenison Gym
Michigan State University
East Lansing, Michigan 48824
(517) 353-4412

The Editorial Board will then review each paper and work with authors to help prepare the papers for publication. Each is handled on an individual basis.

Guide to Contributors

Athletic Training, the Journal of the National Athletic Association, welcomes the submission of manuscripts which may be of interest to persons engaged in or concerned with the progress of the athletic training profession.

The following recommendations are offered to those submitting manuscripts:

1. Seven copies of the manuscript should be forwarded to the editor and each page typewritten on one side of 8½ x 11 inch plain paper, triple spaced with one inch margins.
2. Good quality color photography is acceptable for accompanying graphics but glossy black and white prints are preferred. Graphs, charts, or figures should be of good quality and clearly presented on white paper with black ink, in a form which will be legible if reduced for publication. Tables must be typed, not hand written.

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

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 - a. Knight K: Preparation of manuscripts for publication. *Athletic Training* 11(3):127-129, 1976.
 - b. Klafs CE, Arnheim DD: *Modern Principles of Athletic Training*. 4th edition. St. Louis, CV Mosby Co. 1977 p. 61.
 - c. Albohm M: Common injuries in womens volleyball. *Relevant Topics in Athletic Training*. Edited by Scriber K, Burke EJ, Ithaca NY: Monument Publications, 1978, pp. 79-81.
 - d. Behnke R: Licensure for athletic trainers: problems and solutions. Presented at the 29th Annual Meeting and Clinical Symposium of the National Athletic Trainers Association. Las Vegas, Nev, June 15, 1978.
4. In view of *The Copyright Revision Act of 1976*, effective January 1, 1978, all transmittal letters to the editor must contain the following language before manuscripts can be reviewed for possible publication: "In consideration of the NATA taking action in reviewing and editing my submission, the author(s) undersigned hereby transfers, assigns or otherwise conveys all copyright ownership, to the NATA in the event that such work is published by the NATA." We regret that transmittal letters not containing the foregoing language

signed by all authors of the manuscript will necessitate return of the manuscript.

Manuscripts are accepted for publication with the understanding that they are original and have been submitted solely to *Athletic Training*. Materials taken from other sources, including text, illustrations, or tables, must be accompanied by a written statement from both the author and publisher giving *Athletic Training* permission to reproduce the material. Photographs must be accompanied by a signed photograph release form.

Accepted manuscripts become the property of the Journal. For permission to reproduce an article published in *Athletic Training*, send requests to the Editor-in-Chief.

5. Manuscripts are reviewed and edited to improve the effectiveness of communication between the author and the readers and to assist the author in a presentation compatible with the accepted style of *Athletic Training*. The initial review process takes from six to eight weeks. The time required to process a manuscript through all phases of review, revision, and editing, to final publication is usually six to eight months depending on the timeliness of the subject. The author accepts responsibility for any major corrections of the manuscript as suggested by the editor.

Galley proofs of accepted papers are sent to the author for corrections prior to publication. Reprints of the article may be ordered by the author at this time.
6. It is requested that submitting authors include a brief biographical sketch and acceptable black and white glossy photograph of themselves. Please refrain from putting paper clips on any photograph.
7. Unused manuscripts will be returned, when accompanied by a stamped, self-addressed envelope.

Address all manuscripts to:
Clint Thompson
Department of Athletics
Michigan State University
East Lansing, Michigan 48824

The following recommendations are offered to those submitting CASE HISTORIES:

1. The above recommendations for submitting manuscripts apply to case studies as well but only two-copies of report need be sent to the Editor-in-Chief.
2. All titles should be brief within descriptive limits. The name of the disability treated should be included in the title if it is the relevant factor; if the technique or kind of treatment used is the principal reason for the report, this should be in the title. Often both should appear. Use of subtitles is recommended. Headings and Subheadings are required in the involved report but they are unnecessary in the very short report.

Names of patients are not to be used, only 3rd person pronouns.

3. An outline of the report should include the following components:
 - a. Personal data (age, sex, race, marital status, and occupation when relevant)
 - b. Chief complaint
 - c. History of present complaint (including symptoms)
 - d. Results of physical examination (Example: "Physical findings relevant to the physical therapy program were . . .")
 - e. Medical history - surgery, laboratory exam, etc.
 - f. Diagnosis
 - g. Treatment and clinical course (rehabilitation until and after return to competition) use charts, graphs when possible
 - h. Criteria for return to competition
 - i. Deviation from the expected
 - j. Results - days missed
4. **Release Form**

It is mandatory that *Athletic Training* receives along with the submitted case a signed release form by the individual being discussed in the case study injury situation. Case studies will be returned if the release is not included.

The Use of A Prophylactic "Rubber Bandage" For Support of Muscular Injuries to the Leg

Wesley I. "Doc" Knight, ATC

In athletics locomotion of the body by the legs, either by running or skating, is one of the most important factors common to all sports activities. This indicates that most injuries to the legs significantly handicap the athlete.

There are many muscles located in the thigh, leg, and hip area; these are usually classified into four groups: the quadriceps, which extend the leg and the knee;(1) the hamstrings, which flex the leg and the knee;(2) the abductors, which abduct the hip;(3) and the adductors, which adduct the thigh.(4) Injury to any one of the muscles in these groups will leave the athlete with impaired locomotion and hamper his/her effectiveness in most athletic events.

When a minor muscular injury occurs, or a more severe injury has recovered to a point where activity is not contraindicated, a rubber prophylactic strip may be indicated to relieve some of the strain placed upon the muscle during activity. This device must be applied in a manner so that it aids the movement of the leg and helps compensate for the injured muscle(s).

This article will expand on a previous article that appeared in *The NATA Journal* (Winter, 1970) by Wesley Knight, entitled "An 'Old Miss' Aid for Muscle Strains." The support described in this article has been used successfully by the "Ole Miss" training staff for years. This device, however, has been successful only for treating hamstring injuries; it did not help the other muscle groups mentioned earlier.

Realizing the need for similar supports for the remaining muscle groups, the author has devised other prophylactic rubber supports based on his original concept.

Materials

The recommended material to be used in constructing these supports is a "rubber bandage," manufactured for the telephone industry. It is marketed under the brand name of "rubber bandage" AT 6843, minimum length 14 feet, Fulflex, Inc., Bristol, R.I. Previous attempts to use

innertube-type material proved less effective because of the synthetic nature of that material.

Abductors

The problem encountered with an abductor injury is that of painful abduction of the hip while the leg is flexed. The hip spica can offer very little support for this type of injury. What is needed is a support that will help abduct the hip while the leg is flexed. The trainer can construct such a device by following the steps listed below.

1. The athlete must wear a supporter with a 4-inch waist band, which will act as a base. Then apply pre-wrap and tape just above the knee to act as the other base. (Figure #1)
2. Encase one end of the strip with three thicknesses of elastic tape. Secure the encased end to the injured leg at a point along the midline of the quadriceps, about 3 inches above the knee. Flex the leg and abduct it slightly. (Figure #2)
3. Stretch the strip laterally and upward, and encircle the athlete's waist one time (attach it loosely to the supporter's waist band), and continue to the point where it began. (Figure #3)
4. Encase this end with elastic tape for three thicknesses.
5. Attach the end around the waist. (Figure #4)

Quadriceps

An injury to any one of the quadriceps muscles leaves the entire group at a disadvantage when extending the leg and knee. In order to overcome the injury, a device must be employed that will assist in the movement of the leg and knee. In some instances other supports may prove adequate (elastic wraps, neoprene sleeves, etc.), but there are many instances in which the injury calls for more support than other devices offer. By constructing the support described below, the trainer has a support that helps in the extension of the leg and knee.

Methods

1. Apply pre-wrap above and below the knee, then encase the quadriceps area completely with 2-inch tape.
2. Double the rubber, width wise, and encase the superior end of each strip with three thicknesses of elastic tape. (Figure #5)
3. Attach the encased ends of two strips high on the quadriceps. The length of these strips is then determined by measuring from above the injured area to a point at the mid-calf level. Flex the knee while measuring. (Figure #6)
4. Determine the proper length of each strip, and then enclose the inferior end of each strip with 2-



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FIGURE 1

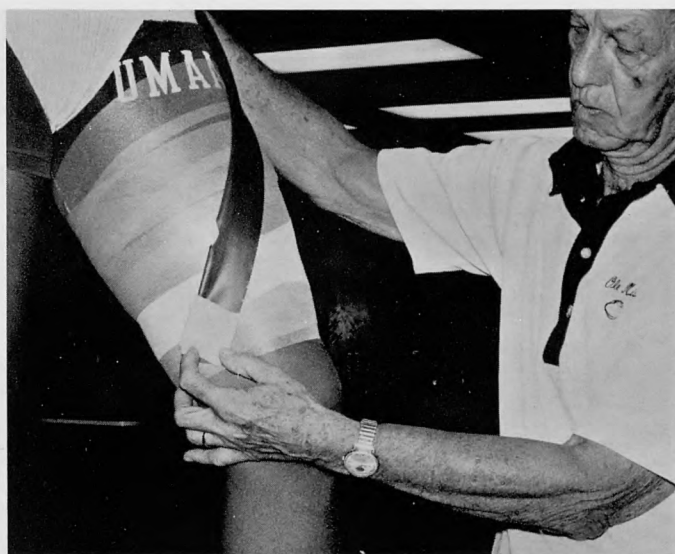


FIGURE 2



FIGURE 3



FIGURE 4



FIGURE 5



FIGURE 6



FIGURE 7

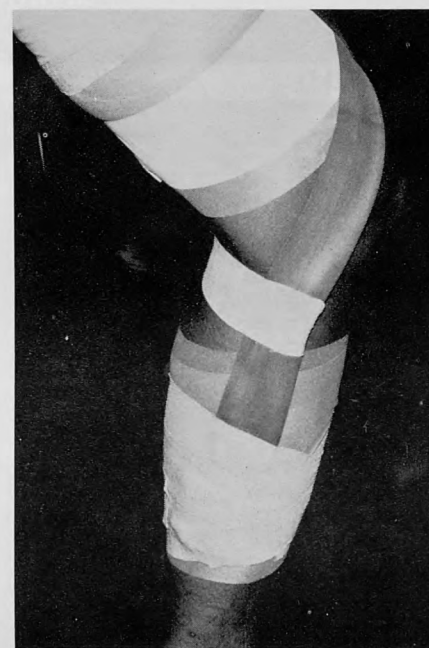


FIGURE 8



FIGURE 9



FIGURE 10



FIGURE 11



FIGURE 12

inch elastic tape for three thicknesses.

5. Cross the strips over each other on the quadriceps and attach them to a point at the mid-calf, flexing the knee while doing this. Secure the strips with elastic tape. (Figure #7)
6. These strips have a tendency to ride over the patella, but that can be avoided by attaching a piece of elastic tape to each of these strips and running it behind the knee. (Figure #8)
7. Enclose the finished wrap with elastic tape.

Adductors

When encountering an adductor strain, it becomes evident that the hip spica will not offer the support that the athlete needs. In order to aid this type of injury, a support must be employed to help adduction of the leg. By using the support described here, the trainer may construct a device that will help pull the leg toward the midline of the body.

Methods

1. Apply pre-tape to an area from 3 inches above the knee to the juncture of the hip. Apply an anchor of tape at the top and bottom. (Figure #9)
2. Double the rubber, width wise, and encase the inferior end with 2-inch elastic tape for three thicknesses. (Figure #5)
3. Attach the inferior end to the medial aspect of the leg 3 inches above the knee, and secure with elastic tape. (Figure #10)
4. Stretch the strip from the medial aspect of the leg, posteriorly across the hamstrings, upward and around to the lateral side continuing to a point at the midline of the quadriceps. Encase and secure it in the same fashion as the inferior end. (Figure #11)
5. Repeat the procedure, this time beginning on the lateral side, stretching the strip posteriorly and medially upward, and attach it at the same point as the first strip. (Figure #12)
6. Enclose the entire wrap with elastic wrap.

Conclusions

It is important to note that the end of each strip or rubber bandage should be encased with elastic tape to prevent the support from working itself loose during activity.

With necessity as the mother of invention, these supports were devised and used for over twenty-five years in the "Ole Miss" training room. These methods have proven to be very effective in aiding the muscular injuries of athletes.

Treatment of these injuries should be continued as usual until the injury has healed.

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2. *Ibid.*, p. 503.
3. *Ibid.*, p. 346.
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Acknowledgements

The author would like to acknowledge the assistance of Tim Garl, Assistant Trainer at The University of Mississippi. †

Editor's Note: Anyone wishing to have an idea, technique, etc. considered for this section should send one copy to Ken Wolfert, Miami University, Oxford, Ohio 45056. Copy should be typewritten, brief, and concise, using high quality illustrations and/or black and white glossy photos.

A Functional Approach in the Rehabilitation of the Ankle and Rear Foot

Russell D. Fiore, MEd, ATC, and John S. Leard, RPT, ATC

Abstract

The ankle and foot working together propel and stabilize the body in sport. The biomechanical demands and anatomical stresses on individual components are very high causing a high frequency of injury as physiological limits are exceeded. Treatment of the moderate/severe injury necessitates a period where activities must be limited. Although during this period good healing is insured, the affected extremity loses some of its neuromuscular fitness and coordination for competition. To re-establish this high level of conditioning we must use a rehabilitation program which will completely prepare the ankle and foot for activity.

Introduction

Although an effort is being made to improve equipment and playing surfaces to prevent lower extremity injuries in sports, there are still an alarming number of ankle injuries which plague those who participate in athletic activities. Glick in 1976 stated that "Head and neck injuries are the most frequent cause of death in sports, knee injuries most frequently result in operative procedures in athletics, and ankle injuries simply occur most frequently".(11) According to Mack in 1975, "The incidence of ankle injuries is quite high, constituting twenty-five percent of all time loss injuries in every running to jumping sport, including basketball, football, soccer, field hockey and volleyball."(28) The most common injury sustained by the cadets at the United States Military Academy at West Point is the ankle sprain according to a 1974 study. Approximately one third of the cadet population sustains one or more inversion sprains.(21) In this paper, we plan to examine possible anatomical reasons for the high incidence of rear foot and ankle injuries and ways to prevent them from occurring or reoccurring.

ANATOMY

Osteology of the Rearfoot Complex

To understand how a joint is injured, one must first have knowledge of the normal joint anatomy and function. It can easily be seen when one examines the limits of motion of his or her own ankle and foot that it is capable of a variety of movement patterns. It is not quite equivalent in range as that of the single joint articulations of the shoulder and hips, but it can be said to account for universal motion. Downing, Klein, and D'Amico,(6) wrote, "the

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whole foot behaves as if it were articulated by a ball and socket joint; by combining three separate joints that act harmoniously it achieves an extraordinary smooth range of motion."

The rearfoot complex which accounts for most of this motion involves multiarticular function. It consists of the articulations of the tibia and fibula with the talus, (talocrural) the talus with the calcaneus, (subtalar) and the talus with the navicular, (talo-navicular). Biomechanically, the talus functions as a "contoured ball bearing" since no musculature attaches to it. Movement may occur in the saggital, frontal, transverse, and oblique planes.(6)

The fundamentals of each joint in the rearfoot complex with the addition of the calcaneocuboid were reviewed to examine its effect on this complexity. The individual joints except the subtalar have more than one axis of movement.(4,7,8,16) All joints in the rearfoot have the capability of motion in more than one plane.(2,6,16,19,27,31) The individual joint axis of the rearfoot are obliquely oriented with respect to one another and to the cardinal planes of the body.(6,7,8,16,26) Each of these joints do not act alone but in combination with one another to provide a wide variety of motion.(6,16) Combining the action of the individual joints permits triplaner motion with the simultaneous movement in three planes including those which are oblique to the cardinal planes.(6,29) The combinations of motion in the ankle and foot joints are used functionally to maintain balance under a variety of changes in center of gravity while weight bearing.(15,27,31)

Ligamentous Reinforcement

All joints considered above are strengthened by fibrous ligamentous bands. These ligaments cover all articulations in this area and run in all possible directions.(31) They function as the first line of defense against disalignment of the joints with the neuromuscular apparatus being considered second.(31) The particular ligaments which are injured depends upon the position of the rearfoot articulations at the time of trauma. Some of the principle ligaments of the rearfoot and a discussion of the motion they limit follows.

Talocrural Joint

The principle ligaments of the talocrural joint are the deltoid (medially) and the lateral collateral (laterally). The deltoid is composed of the tibiocalcaneal, tibio navicular, and the anterior and posterior talotibial ligaments. The tibiocalcaneal ligament limits motion in plantarflexion, dorsiflexion, and eversion.(13) The tibionavicular and the

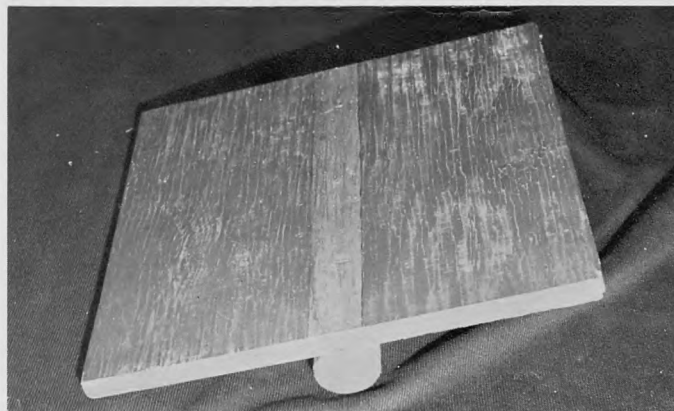


Figure 1. Teeter Board-Uniaxial (Top view)

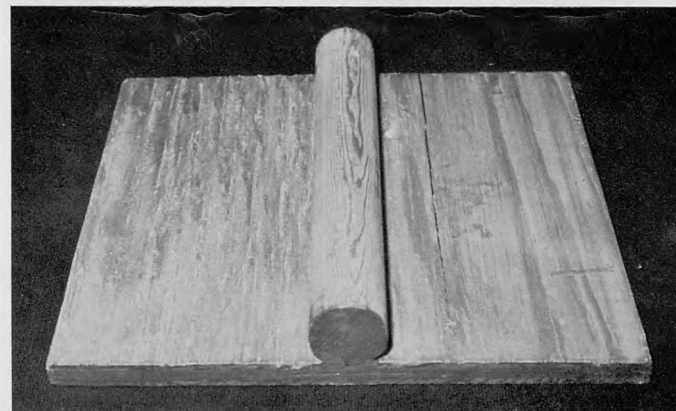


Figure 2. Teeter Board-Uniaxial (Underside view)

anterior talotibial ligaments limit plantarflexion and abduction.(13) The posterior talotibial ligament limits dorsiflexion.(13) The lateral collateral ligament is composed of the anterior and posterior talofibular and the calcaneofibular ligaments. This ligament, like the deltoid, has fibers which protect the talocrural as well as the subtalar joint.(31) The anterior talofibular ligament limits motion in plantarflexion and also limits forward displacement of the foot.(13) With the foot in plantarflexion this ligament has a vertical direction and can be considered the true lateral collateral ligament preventing tilting of the talus in the mortice.(20) The calcaneofibular ligament limits motion in plantarflexion, dorsiflexion, and inversion.(13) With the foot in dorsiflexion it has a vertical direction and is the true lateral collateral ligament preventing tilting of the talus in the mortice.(20) The posterior talofibular ligament resists backward displacement of the foot.(13)

Subtalar Joint

In addition to the above mentioned ligaments, there are others which stabilize the subtalar joint. The interosseous talocalcaneal (cervical) ligament forms the chief bond between these two bones.(13) The posterior portion limits pronation, abduction, and dorsiflexion.(31) The anterior portion of this ligament limits supination, adduction, and plantarflexion.(31) Other ligaments which stabilize the subtalar joint are the anterior, posterior, lateral, and medial talocalcaneal ligaments. The lateral talocalcaneal ligament limits adduction.(31)

Talonavicular

The dorsal talonavicular ligament is one of the primary reinforcing structures in this area; it limits inversion.(12)

Calcaneocuboid

There are four main ligaments reinforcing this articulation. The dorsal calcaneocuboid ligament limits and is easily torn in inversion.(12) The calcaneocuboid section of the bifurcated ligament also limits inversion.(12) The long plantar ligament and plantar calcaneocuboid (short) ligament acts as a tie beam for the arches of the foot.(12)

Ligaments Common to the Calcaneus and Navicular

Primarily two ligaments protect this articulation. One is the calcaneonavicular part of the bifurcated ligament and the other is the plantar calcaneonavicular (spring) ligament. The spring ligament limits abduction of the foot.(31)

The integrity of the rearfoot articulations during many combinations of movements is maintained by the above mentioned ligaments. When inspected in dissection, some of these ligaments appear very slight and as discussed by Grant(12) are weak and easily torn. Each joint can be brought to its limit of motion during the constant maneuvering in athletics. One must not rely on the non-contractile ligamentous system for support under the



Figure 3. Teeter Board Multiaxial (Top view)

great stress of body weight but if possible on the much stronger neuromuscular mechanism.

Muscle Control

There are twelve extrinsic muscles whose interactions result in motor control in the ankle and foot.(13) They act across all joints previously considered except for the gastrocnemius, soleus and plantaris which insert on the calcaneus and do not act across the transverse tarsal joint (calcaneal cuboid and talonavicular).(31)

Elftman(8) and Lapidus(26) point out that a muscle function depends on its relative position to the joint axis it crosses. A muscle function is predetermined and may be limited to that of movement in one plane or increased to many planes with certain alignments of the joints it crosses. Since there are a variety of alignment positions along the joints of the rearfoot, one would expect an individual muscle to possess a multifunctional ability. It is well accepted that muscles rarely act singly, rather, groups of muscles interact in many ways so that a desired movement can be accomplished. The interaction of muscles may take many different forms so that a muscle serves in a number of different capacities, depending on the movement. At different times the muscle may function as a prime mover, antagonist, or a fixator or synergistically as a helper, a neutralizer or a stabilizer. The summary of muscle control from the review of the literature states that the extrinsic muscles of the foot have an effect on more than one joint(3,13,31) are influenced by the position of the joints which it acts upon(1,7,8,26) have a multifunctional ability(1,3,13,18,24) function in groups(3,13,18,29,32) and that a muscle's function within a certain group will vary depending on movement.(13,18,29,32)

One can begin to appreciate the enormous number of variations possible in the behavior of the individual components of the rearfoot complex. When they are integrated, they produce smooth and efficient body progression and have the ability to protect the joints.

Nervous Components

The sciatic nerve supplies all the muscles of the leg and foot, and contributes filaments to all the joints of the lower limb.(13) Many of these filaments terminate in mechanoreceptors found in the capsule and ligaments of joints. These endings are stimulated by both the static and dynamic motions of the joint. It has been shown that the central effects of such stimulation includes alterations in the activity of neighboring muscles. In the foot and ankle, these mechanoreceptors may control the in-

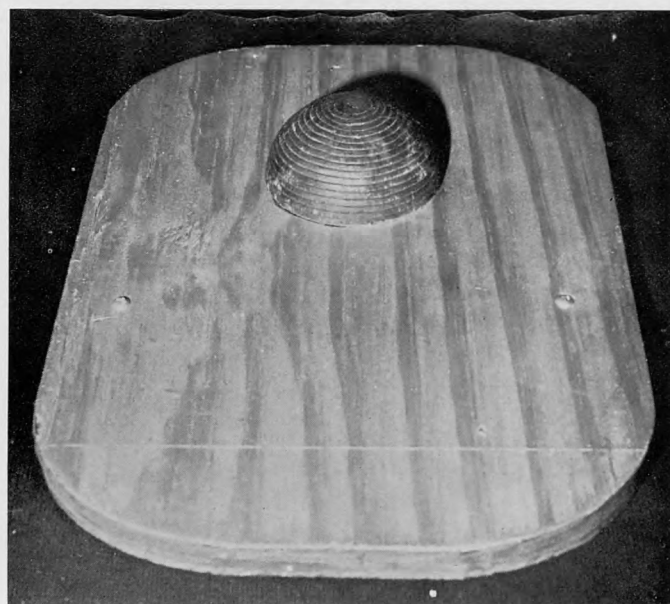


Figure 4. Teeter Board Multiaxial (Underside view)

stantaneous and qualitatively precise contractions of the calf muscle which occur if the foot is to remain stable on uneven ground.(9)

Freeman, Dean, and Hanham(9) have suggested that these articular nerve fibers become damaged with injury to the ligament or capsule since these fibers have a lower tensile strength than collagen fiber. In their study of 1965, they concluded that ligamentous injuries at the foot and ankle frequently produce proprioceptive deficits affecting the muscles of the injured leg. This deficit resulted in the symptom of the foot "giving way". They proved that the proprioceptive deficit and the symptom of "giving way" can substantially be reduced by treatment after injury with coordination exercise.(9)

Mechanisms of Injury

The integration of these bony, ligamentous, muscular, and nervous components are amplified to their limits in sports. A load of 125% of body weight is imposed on the ankle and foot on walking.(27) This is increased to 200% of body weight while running straight ahead.(22) In theory, lateral motion will impose an even higher stress on anatomically weaker structures since the ankle is required to perform in diagonal patterns when changing directions in sports.

The normal well conditioned ankle and foot enables the athlete to maintain balance, effective ground contact, and to maneuver in a variety of directions with constant fluctuations in the center of gravity. While performing, the athlete's ankle will approach its limits of motion in many directions.

A sprain, the most common ankle injury, occurs when the capsule and ligaments are put under excessive stress because the musculature stabilizing the joint is not strong enough or did not act quickly enough to offer protection. In the non-athletic situation these can occur when stepping in a pothole, walking off a curb, tripping down stairs or losing one's balance on a high heel shoe. The athlete encounters other mechanisms which are injury-producing frequently in sports. Cutting maneuvers in sports as football, basketball and soccer increase the frequency of inversion sprains because the step initiating the cut for the turn is from the foot opposite the direction on the turn. For example, a cut to the left usually begins with a lateral pushoff from the right foot, forcing the ankle into inversion, external rotation and ultimately plantar flexion. This same motion results in the classic inversion ankle sprain.(10) The athlete is, hopefully, prepared for injury producing etiology. He is familiar with playing surfaces and equipment he will use. He has practiced routine moves and plays many times in a progressive fashion, building joint flexibility, muscular strength, skeletal strength and coordination through a total range of

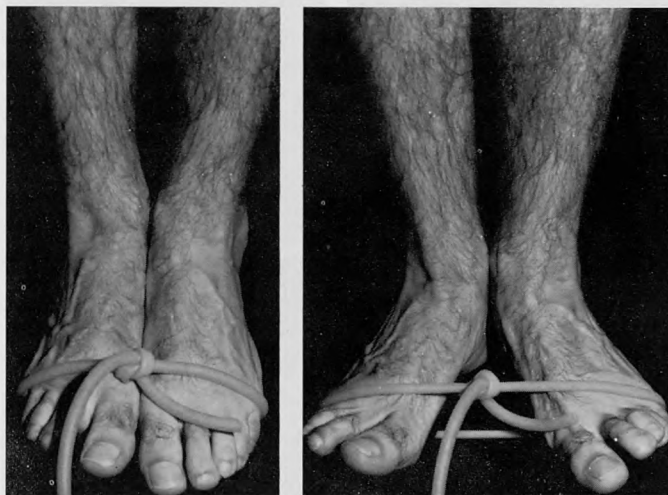


Figure 5. Eversion with rubber tubing (Left-tubing in place), (Right-with feet everted)

movement and should not be at the extreme disadvantage of the person who steps in a pothole.

Rehabilitation

Certain footwear (i.e., 1/2 inch conical cleats in football), and certain playing surfaces (i.e., astroturf, gymnastics and wrestling mats, uneven playing surfaces) add increased traction or rotation and discourage foot release. It has been hypothesized that the above mentioned increase the chance of injury to the ankle.(10) Another circumstance that may increase the chance of injury is the incomplete rehabilitation of the ankle following an injury.

Sammarco states that "Athletes with weak ankles that appear between the ages of 20-40 owe them to many ligamentous sprains during sports activities as a growing child.(30) Three to four weeks after injury, the majority of minor to moderate ankle and foot injuries feel better. Pain, swelling and tenderness decrease while range of motion and strength progressively increases. Usually the athlete has been allowed to return to activity with some protective strapping. It is possible that even though the ankle and foot complex seem to be functioning well at this time, many hidden faults could be present. When placed in the stressful situations of athletic competition, these could affect performance as well as result in re-injury to the area. These hidden faults would include muscle imbalances and inadequacies in proprioceptive feedback and neuromuscular coordination. In reviewing the literature on ankle and foot rehabilitation, very little is written concerning the correct manner to train, maintain and re-educate the foot and ankle following injury.(59,11,14,17,22,23,25) This came as a surprise in light of the high rate of occurrence of ankle injuries and disabilities.

There are a variety of progressive exercise routines used today. Following is a list of the more common methods and at which phase of rehabilitation they would be initiated. Some of these exercises are used in more than one phase. Phase classification is taken from Jackson, Ashley, and Powell.(24)

Phase I care is aimed to limit the extent of the injury. This includes the use of cold, compression, elevation, strappings, wrappings, bracing, and ambulation with crutches to protect the injury.

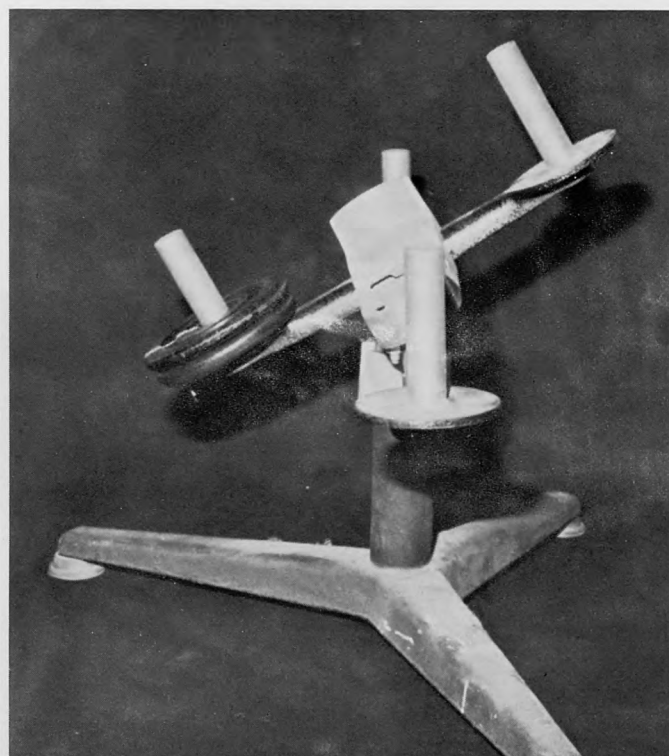


Figure 6. Uniaxial PRE machine

Phase II emphasizes restoration of motion and function. Examples of this phase include: active exercises against gravity in the saggital plane, circumduction clockwise and counter-clockwise, weightbearing passive exercises to increase dorsiflexion (heel on floor, lean forward, alternate knee bent and straight), drawing letters of the alphabet with ankle and foot, and progressive weight bearing.

Phase III consists of exercises to increase strength, agility, and endurance. This phase is begun when the patient can demonstrate ankle and foot range of motion equal to the unaffected limb. Examples of this phase include: walking, jogging, running straight ahead, running in circles of decreasing radii, and running and cutting specific to the sport. All of these exercises must be performed without pain or limping.

Rehabilitation of ankle injuries require strengthening of its full range of motion in the specific ways the ankle functions during daily activity. The previous review of the literature has shown the variety of movements (straight plane, diagonal, rotational), the muscle functions (balancing, cutting, accelerating, decelerating), and coordination the ankle is capable of performing. The exercise program must meet all of these needs.

The obvious answer to the rehabilitation program would be to progressively return to functional activity increasing ankle strength by increasing the difficulty of activity. However, as the review of the literature points out, hidden faults may exist if strengthening of the ankle is done by functional activities alone. The rehabilitation program must consider the gap between phase II and III. It's in this phase of the ankle exercise program that the hidden faults develop. The exercises below are ones which the authors feel bridge this gap. They may be incorporated into the program as soon as possible. The determining factor in initiating an exercise to the program is it's proper performance without pain. When the goals have been reached of each exercise, then progressive return to activity is incorporated into the program. Thus these exercises are incorporated into both phase II and III of the rehabilitation program.

The following is an outline explaining the needs that each exercise will meet and a brief description of each exercise.

OUTLINE

Straight Plane (The cardinal planes according to basic anatomical alignment).

- Heel raises
- Heel walking
- Eversion with rubber tubing
- Uniaxial PRE
- Manual resistance
- Multiaxial PRE

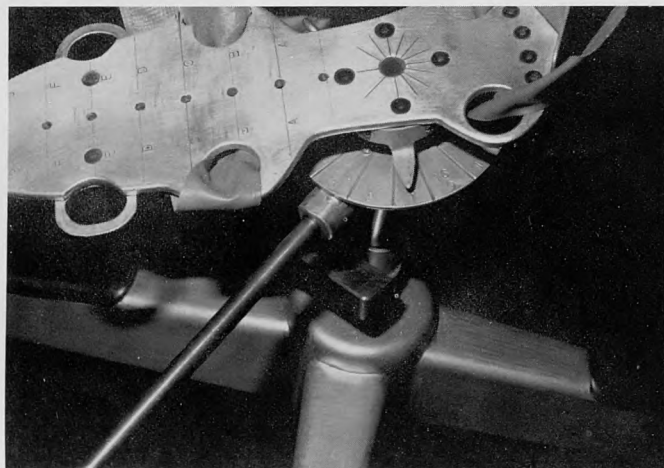


Figure 7. Close up Multiaxial PRE resistive mechanism

Diagonal: (Oblique plane movement to the cardinal plane)

- Heel raises
- Heel walking
- Manual resistance
- Multiaxial PRE

Combination of Diagonal, Straight Plane, and Circumduction

- Multiaxial PRE
- Manual resistance

Balancing and Coordination Exercises

- Unilateral Balance
- Teeter Board-Uniaxial
- Teeter Board-multiaxial
- Jump rope

Exercise Description

Heel Raises — The athlete stands with toes straight ahead (straight plane) or with toes pointed slightly in (diagonal exercises). He or she then places the balls of the feet on a 2 x 4 piece of wood and rises up on the toes, lifting the heels off the floor. Wearing a weighted vest or resting a weighted bar on the shoulders will increase the difficulty of the exercise.

Heel Walking — The athlete will lift their toes off the floor and walk on their heels, keeping the toes straight ahead (straight plane) or with forefoot turned up and in. (diagonal) Increasing walking distance will increase the difficulty of the exercise.

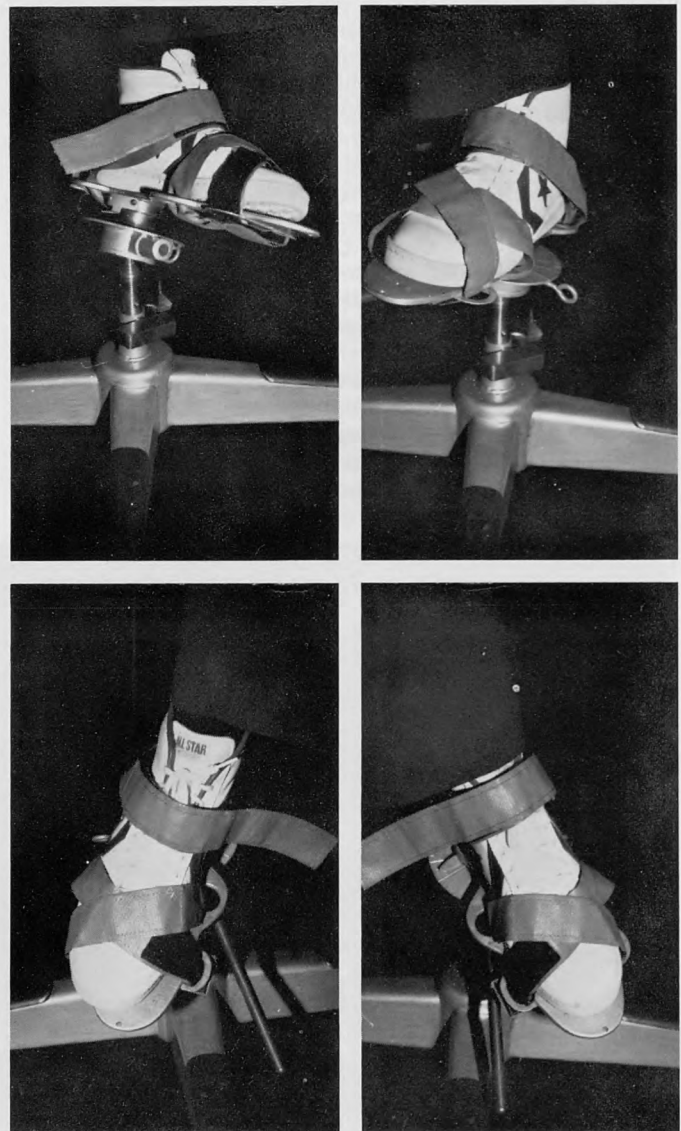


Figure 8. Ranges of movements of multi-axial PRE machine

Eversion with rubber tubing — (Figure 5) The athlete sits with knees bent. Rubber tubing is placed around the forefoot. The knees and medial malleoli are kept together as dorsiflexion and eversion of the forefoot occurs. Difficulty is increased by plantarflexing the ankle while everting.

Uniaxial PRE — (Figure 6) The athlete sits with the foot strapped into the exercise machine. (The picture shows the Elgin Ankle Exerciser.) Using weights, the machine is adjusted to perform straight plane dorsiflexion and plantarflexion as well as inversion and eversion. Difficulty is increased by adding more weights.

Manual Resistance — The athlete has movements (straight plane, diagonals) of the ankle and forefoot resisted by a staff member. The main disadvantage to this exercise is not having an objective measurement of improvement of ankle function.

Unilateral Balance — The athlete stands between parallel bars (or substitute) on one foot with the other foot placed behind opposite knee. The hands are placed on the hips and attempts are made to balance on one foot without having to touch the parallel bars. When the athlete is able to balance with eyes open, difficulty is increased by closing them.

Teeter Board-Uniaxial — (Figure 1 and 2) The athlete stands, as in above exercise, except the attempt to stand is made on the board with the tilt occurring in either the sagittal or frontal planes.

Teeter Board-Multi-axial — (Figure 3 and 4) When uniaxial balance has been conquered, the athlete attempts balancing using the multi-axial board. Remember to use safety precautions with all exercises.

Jumping Rope — Skipping rope is performed using both feet or alternating feet. The jump is only high enough to allow the rope to pass beneath the feet. The wrists are used to twirl the rope rather than the arms. To increase the difficulty the jumps per minute are increased.

Multi-axial PRE — (Figure 7 and 8) This exercise machine was invented by Russell Fiore. The seated athlete's foot is secured to a foot plate which moves around a multi-axial ball and socket joint apparatus. A maximum of 45 degrees of motion is possible from the neutral position in all planes. This motion is limited to the athlete's own range since resistance is given through a frictional mechanism. Resistance can be progressively adjusted for 0-90 lb. Work is in straight planes, diagonals and rotatory patterns.

A program which uses straight plane, diagonal, rotatory, balancing, and coordination exercises as described above and which has been carefully designed to progressively meet the individual's needs will insure the best possible functional return and prevent the weakness and imbalance which leads to re-injury.

Summary

The ankle and foot working together propel and stabilize the body in sport. The biomechanical demands and anatomical stresses on individual components are excessive causing a high frequency of injury when physiological limits are exceeded. Treatment of the moderate/severe injury necessitates a period where activities must be limited. Although during this period good healing is insured, the affected extremity loses some of its neuromuscular fitness and coordination for competition. To re-establish this high level of conditioning we must use a rehabilitation program which will completely prepare the ankle and foot for activity. The authors have outlined an exercise program which attempts to prepare the foot and ankle for these activities.

Acknowledgements

Photographs in this article were taken by Lewis Glass and Elizabeth Schaefer of the Orthopaedic Resource Center, Children's Hospital Medical Center, Boston, Massachusetts 02115. +

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Adverse Drug Interaction In Sports Medicine

John Wells, ATC, PhD, PT

The following article is the second in a series to be presented by the Drug Education Committee.

Pharmaceuticals, both prescription and over-the-counter, are prescribed for athletes by either the team physician or a family physician. The Athletic Trainer must be aware of what medications the athlete is taking and what interactions may occur in the athlete as a result of taking a combination of pharmaceuticals at any one time. In addition, the Athletic Trainer must also be cognizant of the interactions between pharmaceuticals and the athlete's normal dietary intake. This article will attempt to present some of the pharmaceuticals commonly used in the practice of Sports Medicine.

World Health Organization Definition

The definition of an adverse drug interaction is any response to a drug that is noxious and unintended and that occurs at doses normally used in man for prophylaxis, diagnosis, or therapy. Effects caused by medication errors are not included since the routine, appropriate use of the drug is implied. (1)

Methods of Interaction

A drug can interact in four different ways with other drugs.

1. **Additive:** The result is equal to the sum of the effects of the drugs used. ($2 + 3 = 5$).
2. **Synergistic:** The total effect of the drugs is greater than the (additive) sum of the drugs if they were taken by themselves or on separate occasions. This is a multiple effect rather than additive. ($2 \times 3 = 6$). Barbiturates mixed with alcohol, for example, have up to four times the central nervous system effect than either the barbiturates or alcohol would have separately.
3. **Potentiating:** One drug increases the effect of the other. For example using acetylsalicylic acid in combination with codeine. The aspirin potentiates the effect of the codeine so that less codeine is needed to obtain the same degree of pain relief.
4. **Antagonistic:** One drug can neutralize or block a drug with the opposite effect(s). The taking of barbiturates to counteract the jitters caused by taking amphetamines would be an example of antagonism. (1)

Mechanisms of Interactions

There are five mechanisms by which pharmaceuticals may interact with each other.

1. **Absorption:** The extent and rate of absorption can be affected independently by drugs. Those drugs with long half-lives are usually not affected by changed rate, but changes in the fraction absorbed may be altered. Large doses of antacids, large amounts of milk, or phytic acid (present in cereals and grains)

may decrease the total amount of iron or tetracycline absorbed.

Drugs with short half-lives affect both extent and rate of absorption. The administration of penicillin on an empty stomach yields higher effective blood levels than if the penicillin were taken at meal time.

2. **Distribution:** For most drugs, free-drug plasma concentration correlates with clinical response. Bound drugs may be displaced by other drugs, but clinically relevant interactions are unlikely unless the original drug is at least 85 percent bound. Displacement of warfarin by Butazolidin can produce serious hemorrhage.
3. **Biogransformation:** Many drugs are not given for sufficient periods of time in large amounts to produce clinically significant enzyme induction in humans. Nevertheless, those drugs that are enzyme inducers can markedly alter the response of the second drug, especially when used for long periods of time. Examples of these drugs are the barbiturates, butazolidin, meprobamate, and glutethimide.

"Alcohol, the number one drug of abuse in the United States . . . does not mix well with a wide range of pharmaceuticals . . ."

4. **Excretion:** Drug induced alterations in renal blood flow, glomerular filtration, tubular reabsorption, or tubular secretion can result in drug interaction. Antibiotics administered with other potentially nephrotoxic drugs can produce additive impairment of renal function. Laxatives and antacids can affect the excretion of other drugs. In addition, colonic flora enzymatically biotransform and alter the absorption of some drugs, therefore, antibiotic induced changes in colonic micro-organisms may alter the clinical response of other drugs.
5. **Receptor Action:** Certain drug responses are mediated by activating specific receptors. When two drugs are given concurrently, activation of one drug's receptor may enhance or decrease the response of the second drug's receptor. The anticholinergic effect of antihistamines and certain phenothiazines operate through the same muscarine cholinergic receptor. (1)

Alcohol and Interactions With Other Drugs

Alcohol, the number one drug of abuse in the United States, although not regulated as a drug under the Food, Drug, and Cosmetic Act, does not mix well with a wide range of pharmaceuticals such as antibiotics; anticoagulants; antidiabetic drugs, including insulin (48 ml of 100 proof drink may cause this effect); antihistamines; high blood pressure medication; and sedatives. Alcohol combined with antihistamines, tranquilizers, or antidepressants cause excessive drowsiness that can be especially hazardous to someone driving an automobile,

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operating machinery, or performing some other task that requires mental alertness. A good rule of thumb is to avoid all alcoholic beverages when taking any type of medication, prescription or over-the-counter.

The Athletic Trainer must be aware of the alcohol content of medications the athlete may be taking. This may vary from 1 to 18 percent (2 to 36 Proof).(4)

Nicotine and Interactions With Other Drugs

January 11, 1964, marks the day when the Surgeon General of the Public Health Service released the first Smoking and Health Report indicting cigarette smoking as a major health hazard. Subsequent reports, issued almost every year since then have contributed to a growing body of scientific evidence that links smoking to a variety of disabling and fatal diseases.

The 1979 report is no exception. It reveals that the health consequences of smoking are even more serious than was supposed 15 years before, particularly for women and teenagers. While much of the data in the latest report has a familiar ring there are some things completely new. Smoking of tobacco should be considered as one of the primary sources of drug interactions in man. Smoking can affect the way drugs behave in the body.

A specific smoking-other drug problem is the increased risk of heart attack, stroke, and other circulatory diseases among women who smoke and also use oral contraceptives. This risk is higher in women older than 37 years and in heavy smokers.

The new report points out that the dominant effect of smoking on other drug metabolism comes from the ability of nicotine and other tobacco constituents to speed up the

"The 1979 report is no exception. It reveals that the health consequences of smoking are even more serious than was supposed 15 years before . . ."

processes by which the body uses and eliminates a drug. (These were presented earlier in this article.) This means not only that a drug may be less effective, but that the duration of its effect may be shortened.

Theophylline is an important bronchodilator used for treating acute and chronic asthma and bronchitis. Smokers may need one and one-half to two times as much of the drug as non smokers to get the same result. Darvon has been shown to be less effective in smokers than in non smokers.(2,7)

Food and Drug Interactions

Would it occur to you not to swallow tetracycline with a glass of milk? Or to avoid cheese and wine if you are taking medicine for hypertension? Do you women who are taking birth control pills eat more green leafy vegetables?

The extent of interaction between foods and drugs depends on the drug dosage and the individual's age, size, and specific medical condition. In general, though, the presence of food in the stomach and intestines can influence a drug's effectiveness by slowing or speeding up the time it takes the medicine to go through the gastrointestinal tract to the site in the body where the drug is needed.

Food also contains natural and added chemicals that can react with certain drugs in ways that make the drugs virtually useless. Some reactions can be dangerous, triggering a medical crisis, or even death.

It is because of these interactions that the doctor tells the athlete to take certain medications on an empty stomach, some just before meals, and some with meals.

A major way food affects drugs is by enhancing or im-

peding absorption of the drug into the blood stream. There are a few cases in which foods speed up absorption. For example, blood levels of griseofulvin rise markedly if the patient eats fatty foods before taking the drug.

More commonly food and beverages interfere with absorption. On the other hand, taking some iron supplements with citrus fruits or juices which contain ascorbic acid enhances absorption of the iron. However, taking acetylsalicylic acid with orange juice inhibits the effectiveness of the aspirin.

In general, it is unwise to take pharmaceuticals with soda pop, acid fruits, or vegetable juices unless you check with your doctor first. These beverages can result in excess acidity that may cause some drugs to dissolve quickly in the stomach instead of in the intestines where they can be more readily absorbed into the bloodstream.

Some foods contain active substances which can cause a drug effect or which can interact with a drug to produce an unexpected or counter effect. For example, licorice extracted from natural sources contains a substance which, when consumed regularly in excess amounts, may cause an elevation in blood pressure. Licorice is a favorite ingredient in candy and flavoring for some pharmaceuticals. Most United States manufacturers now use a synthetic flavoring but many imported products still contain licorice from natural sources. Continued regular use of products containing natural licorice extract could aggravate high blood pressure or counteract the effect of medication for hypertension.(4)

Some Other Drugs of Concern

Aspirin (Acetylsalicylic Acid): Since the incidence of gastric ulceration may be increased if aspirin is given with other ulcerogenic agents such as corticosteroids, butazolidin, or indocin, the concurrent use of these drugs should be avoided.

Salicylates also decrease serum protein binding of sulfonamides which increases the amount of free sulfonamide and potentially increases toxicity.

Cephradine (Velosef or Anspor): These are acid stable drugs and are rapidly absorbed when administered on an empty stomach. The presence of food delays the rate of absorption somewhat, but does not affect the total amount of the drug absorbed.

Tetracycline: A final note about this antibiotic. Photosensitivity is reported with the use of some of the tetracyclines. That is, the athlete will be more sensitive to the ultra violet rays of the sun.(1,3,5,6)

Conclusion

It has not been possible to include all pharmaceuticals every Athletic Trainer is aware of in Sports Medicine. Therefore, if the reader has a question about a particular medication not presented here this information may be obtained by writing the author directly. +

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Topically Applied Tobacco: Its Effect On the Healing Time of Contusions

Rulen S. Francis, PhD, RPT, ATC, and Robert W. Kamienski, EdD

As the formula $KE = Mv^2/2$ becomes more and more a part of the lives of people and in particular those participating in athletics, the end result is often injury. From documented reports of injuries occurring in the United States by researchers the injuries are unfortunately too often of the disabling type(10). With an ever increasing demand for athletic excellence and winning, with its ensuing financial remuneration, injury is becoming more and more "the price one pays for glory." Hoyt(6) reporting in the *Journal of the Bone and Joint Surgery* in 1967 contended that "contusions, muscle and tendon strains, tendon avulsion and rupture, and nerve injury constitute the bulk of soft tissue trauma in contact sports." These types of injuries remain essentially unchanged today accompanied by an increase in the frequency and intensity of the injured.

In reference to soft tissue trauma and its repair, McLaughlin(8) observes that, with the exception of avascular tissues such as the cornea and hyaline cartilage, injury, inflammation and repair become an inseparable triad. Medical and paramedical professionals in sports medicine are assiduously seeking improved methods of prevention and treatment as a means of combating this all too frequently seen triad.

The prevention of injury in the contemporary sports world would include a number of approaches which have been found successful (i.e., rule changes, equipment advances, strength and flexibility improvements among the athletes, preventive taping and adequate warmups to name a few.) The conventional management of inflammation has typically ranged from corticosteroids and other anti-inflammatory drugs to cryotherapy and thermal therapy.

In this enlightened era of medical technology and advanced pharmacotherapy there are obviously other medicinals available for the treatment of traumatic contusions, inflammation and edema. An example of an innovative approach to the management of contusions was reported by Blonstein(1) in *The Practitioner* as early as 1964. In a "sport" where the intent is to produce contusions and hematomas, Blonstein treated boxers with a "buccal varidase" which is a combination of streptodornase and streptokinase. Taken as a prophylactic it reduced hematomas and contusions by 15% and diminished the residual effects of trauma more rapidly in 50% of the cases investigated.

Tissue Repair

To enhance tissue repair various and sundry modalities have been employed. The list includes such notables as chemotherapy, electrotherapy, hydrotherapy, light therapy, thermotherapy and cryotherapy. Such other assorted treatments as poultices, salicylates, and hyaluronidases have enjoyed some popularity.

This study explored the possibilities of tobacco as another adjunct in the healing process of tissue repair. Tobacco was used as a medicine man's "cure" in antiquity.

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In 1683 Peter Heylyn denounced tobacco as a habit-forming drug while Jean Nicot serving as the French Ambassador to Portugal sent tobacco seeds back to his queen, Catherine de Medici, as a "cure" for headaches(11). In 1833, the Mormon prophet Joseph Smith(9) stated "and again, tobacco is not for the body, neither for the belly, and is not good for man, but is an herb for bruises and all sick cattle, to be used with judgment and skill." During the midcentury and on into the years immediately preceding the era of modern medicine tobacco in various forms has been employed as a "medicinal" for maladies ranging from rheumatic pains to toothache(4). Today, tobacco is negatively associated with such notorious maladies as carcinoma and emphysema(3).

The contemporary use of tobacco as a medicinal, as far as can be determined, begins in Yugoslavia. In 1972, Marv Roberson, an athletic trainer for Brigham Young University, was invited to the Balkan games at Sarajevo, Yugoslavia where he encountered trainers spraying contusions with Miospray, an aerosol tobacco spray manufactured by Lek of Ljubljana, Yugoslavia(2).

Tobacco as a moist pack, applied to contusions as a poultice, has found favor with athletic trainers in spotted geographical locations. The poultice is applied to the contusion following conventional cryotherapy and remains intact for 24 hours. In previous and concurrent studies conducted at this institution on male and female athletes employing the tobacco poultice, favorable empirical results have been obtained(2).

The traditional poultice is made up of ingredients ranging from moist bread crumbs to mustard and linseed preparations and has been employed in medicine to stimulate absorption of inflammatory byproducts and diminish purulence. Tobacco poultices have and continue to be employed in sports medicine as an adjunctive modality in the treatment of soft tissue contusions. To determine the effectiveness of tobacco as a poultice, however, a compromise of necessity had to be reached.

A poultice applied to an experimental animal has some limitations. Likewise the procurement of human subjects who would subject themselves to trauma has obvious limitations! For one to apply a tobacco poultice to an athlete with contusions for experimental purposes, presents too many uncontrollable variables. Therefore, the trade off in applying a topical application of tobacco liquid extract (juice) to the thigh of a rat.

Methods

Eighty male retired breeder rats of the Holtzman strain with a mean body weight of 400 grams were employed in this study. The rat was the experimental animal of choice because of ease of handling and adaptation to the instrument of induced trauma. The experimental animals were randomly assigned to eight experimental units of ten rats each. Each unit consisted of five treatment and five control animals. The eight units were so designed because of the sacrifice periods assigned to each unit, i.e., the first unit was sacrificed eight days after initial treatment and one unit each week thereafter.

Because of the obvious limitations of applying a poultice to the thigh of an experimental animal it was determined that each animal would receive an application of tobacco

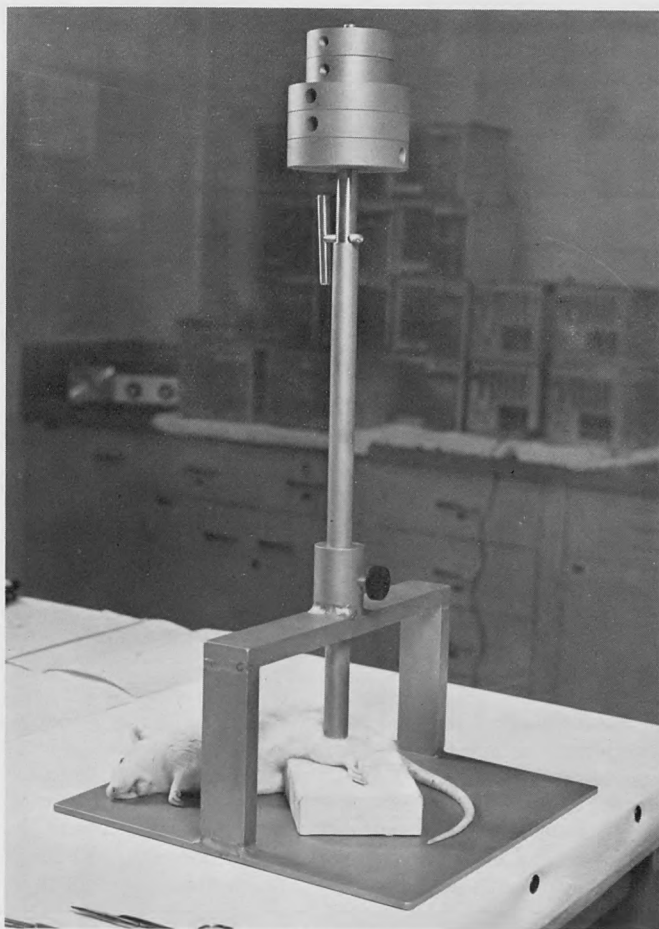


FIGURE 1

juice painted on the thigh. The control group was painted with an application of distilled water. The tobacco juice was derived from a procedure of osterizing 31.5 grams of "Big Red" chewing tobacco in 126 ml. of distilled water and allowing to "cure" for twelve hours. The preparation was then vacuumed through a Büchner funnel employing

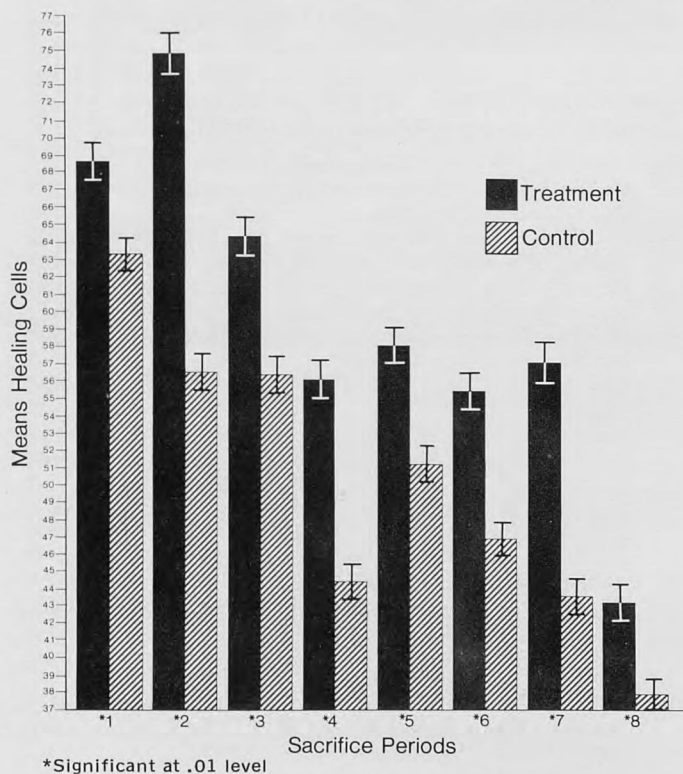


FIGURE 2

a number three Whatman filter paper allowing approximately four hours to complete. This procedure was repeated daily during the fourteen day treatment period. The content of the tobacco juice concentrates were not quantitatively analyzed.

Tissue Traumatization

Day one of the experiment all eighty rats were traumatized producing a nonpenetrating wound on the lateral thigh (biceps femoris). The traumatizing unit (Figure 1), an experimentally validated instrument, was developed by our research laboratory and has been employed in several previous studies. The striker shaft produced a wound 17.7 mm² by dropping a 4.08 kg weight from a height of 30.48 cm onto the thigh of the anesthetized animal. Twenty four hours later all animals in the experimental group were painted with tobacco juice on the contusion and this procedure continued *b.i.d.* for fourteen days. The control group received a painted application of distilled water for the same duration of time. The twenty-four hour period was selected to coincide with the initial period of cryotherapy ordinarily occurring in the treatment phase of the contused patient.

Tissue Extraction

Five experimental animals from each group were sacrificed on day eight of the experimental study and every seven days thereafter. Prior to tissue extraction the animal was weighed and the bruise diameter recorded.

The traumatized integument was excised and discarded. The underlying muscle tissue was excised and fixed in a formalin solution and sent to the histology lab for slide preparation. Three slides were prepared from each sample. Each slide was analyzed for pathological changes and tissue repair. Utilizing an ocular micrometer a grid area was randomly selected within the damaged area of each sample and counted. The count incorporated all nuclei within this area. The nuclei represent the presence of healing cells. These cells are lymphocytes, plasma cells, macrophages, granular white blood cells, fibroblasts, fibrocytes, endothelial cells, mesenchyme, myoblasts and skeletal muscle cells which invade a damaged area and remain until healing has completed.

Results

A three way analysis of variance was computed on

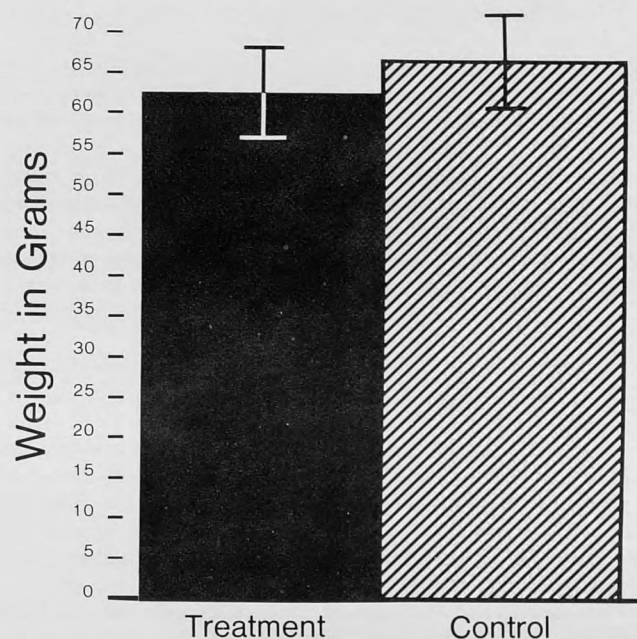
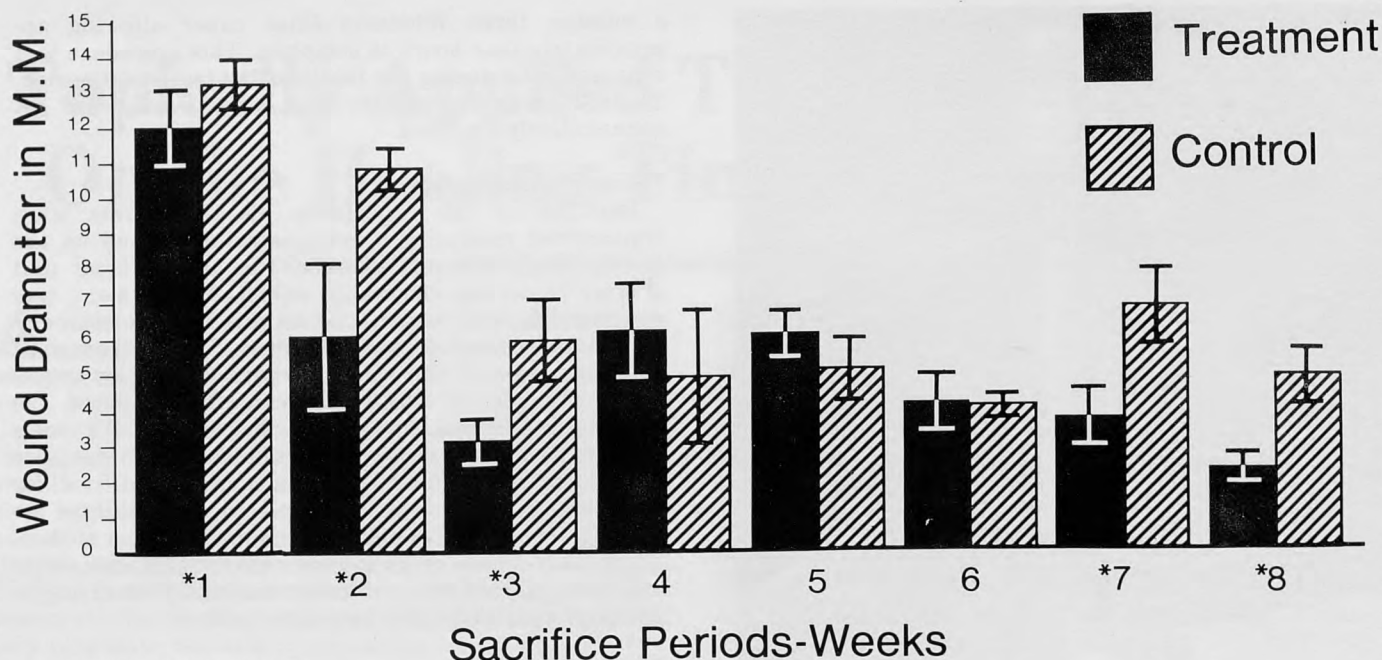


FIGURE 3



*Significant at .01 level

FIGURE 4

three dependent variables: 1) the effect of tobacco juice on the healing rate of traumatized soft tissue over an eight week period; 2) the animal weight differential at time of sacrifice from the initial weight; and 3) the bruise size differential between the experimental and control groups.

Figure 2 presents a graphic illustration of the number of healing cells in the treatment and control groups. The results from the data analyses indicated there was a significant difference ($p < 0.01$) between the experimental animals painted with tobacco juice over those painted with distilled water. That is, a more significant number of healing cells were seen in the experimental animals painted with the tobacco liquid extract. This significance was demonstrated in all eight periods. Figure 3 demonstrates no difference in weight change between the two groups ($p < 0.01$). Figure 4, representing graphically the wound size differential, displays an overall significance and a weekly sacrifice period significance with the exceptions of periods 4, 5 and 6. In these periods a reversal was noted that could be due to measurement error.

Discussion

A topical application of tobacco liquid extract was painted on the thighs of experimental animals *b.i.d.* for fourteen days to determine the effect of tobacco on the healing time of traumatized soft tissue. The paintings served as a substitute for an application of a tobacco poultice which as previously indicated, has some rather apparent limitations. The tobacco paintings also served as an alternate to the more conventional application of a poultice and attempted to answer the question as to whether the results which have been obtained from the use of moist packs on contusions in the training room came as a result of the moisture content in the pack or from the medicinal effect of the tobacco or both.

The majority of published research dealing with the application of tobacco juice or tobacco condensates in the experimental animal has demonstrated abnormal tissue growth, lesions and carcinoma^(7,5) however, no apparent skin lesions were detected in this study primarily because of the limited duration of the topical application. The apparent rationale for completing this study was to test the hypothesis of the effectiveness of tobacco as an aide in expediting the healing process of traumatized soft tissue.

The significant findings in this study are two-fold: 1) Tobacco juice painted on the thigh of the experimental animal resulted in more healing cells present at sacrifice

time than animals painted with distilled water. 2) The experimental group demonstrated statistically an overall smaller wound measurement at sacrifice time than did the control group. What accounted for the apparent healing effect of the tobacco liquid extract? Was it due to one of the several alkaloids found in *Nicotiana tabacum*? Because of an almost complete absence of reported research in this area one can only theorize as the reason.

Conclusion

There are many known, and a few well established, modalities being employed by practitioners to facilitate the healing process of soft tissue contusions during the post-traumatic period. In an attempt to establish another and perhaps more effective modality for the management of contusions, tobacco liquid extract was applied to a non-penetrating wound to determine its effect on the healing time of traumatized soft tissue. This study demonstrated the effectiveness of tobacco as an adjunctive modality in the therapeutic management of soft tissue injuries in the experimental animal, injuries brought about by an alterable arrangement of mass and velocity. †

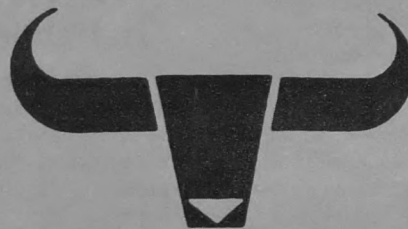
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FORT WORTH '81



Downtown Fort Worth, Texas with The
Tarrant County Convention Center in the foreground.



**32nd Annual NATA Meeting and Clinical Symposium
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Potpourri



Dennis Aten, ATC, RPT, MS
Eastern Illinois University

New Publication

The American Orthopaedic Foot Society recently published the first issue of its official new journal, *Foot and Ankle*. Content of the bimonthly publication includes research articles, reviews, and specialized symposia on topics such as management of club foot, sports injuries, bunion surgery and shoe and orthotic office care. Editor-in-Chief of the journal is Melvin H. Jahss, Chief of Orthopaedic services, Hospital for Joint Diseases, 64 East 86th Street, New York, New York 10028. Publisher is Williams & Wilkins of Baltimore, Maryland.

Nutrition and Alcohol Pamphlet Offered

A pamphlet on dietary guidelines jointly produced by the U.S. Departments of Agriculture and Health and Human Services advises those who drink alcohol to do so in moderation.

The booklet, "Nutrition and Your Health: Dietary Guidelines for Americans," lists six other rules for good nutrition: eat a variety of foods; maintain ideal weight; avoid too much fat, saturated fat, and cholesterol; eat foods with adequate starch and fiber; avoid too much sugar; and avoid too much sodium. Copies of the pamphlet are available from public health nutrition directors in State health departments, from cooperative extension nutrition specialists at land grant universities, or by writing the USDA Office of Governmental and Public Affairs, Washington, D.C. 20250.

Think Average, Not Thin

"Reader's Digest"

In a surprising reversal of the established view that "you can't be too thin," a long-term study of over 5000 Americans has found that people who are severely underweight (more than 10 percent under average for their weight group) run an increased risk of death similar to that of people who are severely overweight.

The report comes from the Framingham Study, which has followed the medical fortunes of residents of Framingham, Mass., for more than 20 years. Its results contradict a 1959 insurance-industry survey, which concluded that the death rate decreased steadily with the decreasing weight of the individual. The widely used tables of "ideal weight" are based in a large part on that 1959 study. "The findings", say the report, "raise some questions about the health benefits from weight reduction in persons of average or near-average weight." The study

divided Framingham residents into five weight groups, ranging from the leanest to the most overweight. The death rate for women was highest for the most underweight and the most overweight. The death rate for men was actually highest for the most underweight.

The new findings don't mean that persons who are severely overweight need to try to lose weight, says Dr. William B. Kannel, former head of the Framingham Study, who is now with Boston University. What it does mean is that some Americans may be overdoing their weight-reduction efforts.

American Academy of Orthopaedic Surgeons Produces Two Television Public Service Announcements

*From the July-August,
1980 edition of AAOS Bulletin*

The Academy's Committee on Public Education recently completed production of two television public service announcements (PSAs) which have been released to most of the nation's 600-plus commercial television stations.

Entitled "Proper Jogging Shoes" and "Pre-Conditioning for Jogging," the two 60-second spot announcements mark the Academy's initial effort at public education via national television. Airing of the productions, of course, depends on their acceptance by the program directors of the various TV stations. But, based on the track record of other medical associations such as the American College of Surgeons (ACS) — which has produced eight PSAs during the past three years — the Academy announcements could be viewed by millions of Americans during the next several months.

Developed with the support of the Board of Directors, the PSAs were produced by Cal Dunn Studios of Chicago and are being distributed by Modern TV Shot Distribution.

When the films were sent to the country's television outlets they were accompanied by letters detailing why, in the opinion of the Academy, the announcements are of importance to TV viewers. Storyboards showing selected scenes and dialogue from each PSA were also included and aimed at giving the program director a quick synopsis of each announcement.

Total cost of producing the two PSAs was approximately \$30,000. AAOS officials believe it will be money well spent, however, if the showing approach the success enjoyed by the American College of Surgeons. In 1978, the ACS produced three PSAs — "Cancer Follow-up," "When Your Child Needs Surgery" and "The Hazards of Diving." The announcements were telecast 7,270 times that year to a total viewing audience of 411,100,000.

APTA Also Features Jogging In Public Service Announcement

Prevention of jogging injuries is APTA's message in the newest public service announcement for television. The spot features physical therapist Elizabeth D. Francis and physical therapist assistant Diane McKay. Both women are employed at Mt. Vernon Hospital, Alexandria, Virginia.

Viewers are encouraged at the end of the spot to write to APTA to receive the Association's latest public relations brochure, "Don't Become a Pain Statistic!" Along with prevention of jogging injuries, the brochure gives tips on preventing back pain and stiffness from arthritis.

Ads Audio Visual Products, Inc., of Falls Church, Virginia, has produced this and other TV spots for the Association. Recently, Ads Audio Visual received honors with APTA's "Read the Fine Print" spot which featured an animated snake. They won a Silver Award at the International Film and TV Festival of New York.

As with the other spots, the jogging film was released to the top 50 television market, and storyboards were sent to the balance of the top 100 television markets.

Brochures Available

APTA's new colorful brochure, "Don't Become a Pain Statistic," is one you'll distribute with pride to the public you serve. Tips on ways to prevent jogging injuries, backaches, and stiffness in aging joints are provided. Illustrated with clever drawings, the booklet is chock-full of helpful advice. Emphasis is on preventive health care and the important role of the physical therapy profession in America's health system. Copies are 50¢ each; bulk orders, 35¢ each per 100. Send pre-paid orders to APTA, 1156 15th St. NW, Washington, DC 20005.

Videotapes Available

Two videotapes on orthopedic screening examinations were recently developed by physical therapists, Janet Kristobak and John Sirianni, from the Harmorville Rehabilitation Center, Pittsburgh, Pennsylvania. Available for rental or purchase, the videotapes may be used for instructing students or new staff or as a review for experienced staff. An informational brochure may be obtained by contacting William Fueller, Director of Education, Harmorville Rehabilitation Center, P.O. Box 11460, Guys Run Rd., Pittsburgh, PA 15238.

NEISS Report

A recent "NEISS Data Highlights" estimated the number of product related injuries in the sports and recreational area for a 12 month period. Bicycling activities led the list with 537,109; baseball second with 438,810; football third with 425, 221; and basketball fourth with 388,665. Skating and playground were fifth and sixth with 177,533 and 169,184 respectively. Others listed in order are swimming 87,680; soccer 85,465; racquet activities 83,965; volleyball 75,864; wrestling 63,806; fishing 53,130; guns 51,178; gymnastics 51,083; snow skiing 48,327; mopeds, etc. 46,608; hockey 46,286; skateboards 45,652; exercise equipment 41,941; toboggans, etc. 39,401; water skiing 27,812; track and field 24,216; bowling 21,956; golf 20,026; snowmobiles 15,147; and trampolines 12,340.

Reporting Medical Product Problems

*From a notice in October, 1980
"Progress Report", an APTA Newsletter.*

Athletic trainers wanting to report medical product problems may now do so by phone. The United States Pharmacopeia has made available a 24-hour, toll-free phone number for health professionals who find it more appropriate or convenient to phone than write. The number is 800-638-6725. Callers in Maryland should call 301-881-0256, collect. The service is not available in Alaska or Hawaii. Callers will receive a typed copy of their report and copies will be forwarded to the FDA and the manufacturer.

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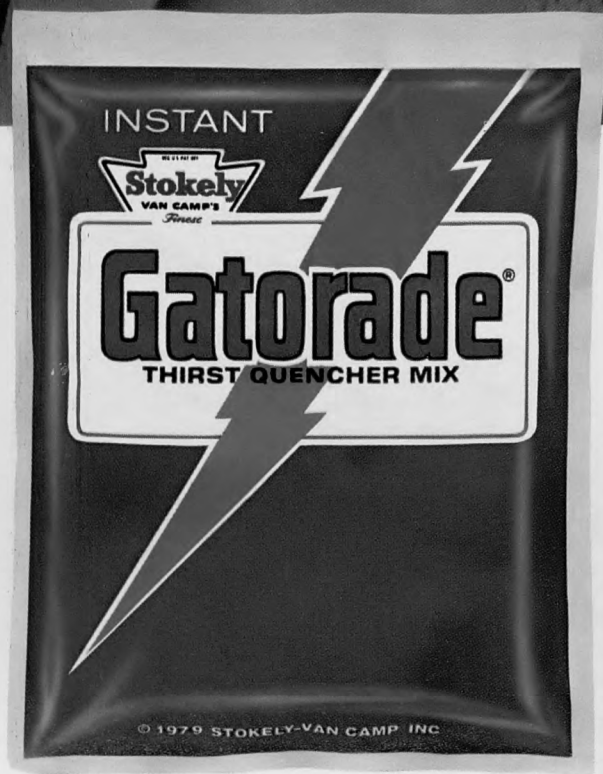
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A Tip From the Field

NAIRS: An Educational Tool

Gerald W. "Jerry" Bell, EdD, RPT, ATC

In 1976 the NATA Professional Educational Committee endorsed the use of NAIRS (National Athletic Injury/Illness Research System) in the approved athletic training education programs. The primary reason for the endorsement was to give athletic training students additional exposure to medical terminology. Recently, the investigator completed research dealing with the evaluation of the clinical experience of the student athletic trainer of 47 NATA approved Educational Programs.

Included in the questionnaire evaluation form was a yes/no/unknown response to the question "Have used and understand NAIRS?" Reasoning behind the inclusion of this question was the response to student athletic trainers query of "additional busywork" and "are medical records necessary?" The investigator premised that NAIRS was a valuable tool to be utilized as a primary record keeping system and educational tool as endorsed by the NATA Educational Committee. Table 1 displays the data accumulated from the 130 evaluation forms returned.

As indicated, there were no significant differences among the three levels of NAIRS responses for each item of the clinical affiliation

evaluation form. However, two areas of evaluation, confidence and recognition of athletic injuries had slightly elevated F values, but they were not significant at the .05 level.

The investigator surmized that the NAIRS material is a valid educational tool and will make better athletic trainers. The investigator has observed tremendous increases in student trainer knowledge of medical injury terminology and a greater

awareness of systematic injury evaluation among his own student athletic trainers. The recent adoption of NAIRS by the National Football League leads the investigator to encourage all athletic training educational programs to utilize NAIRS to update and upgrade current student athletic training experiences to develop skills with a viable data collection system for epidemiological study.

TABLE 1
A Comparison of Differences Among the Three Levels of NAIRS Responses for Each Item of the Clinical Affiliation Evaluation Form: Have Used and Understand NAIRS

CAEF Item	Yes	No	Unknown	Error	F
N = 130*	N = 54	N = 74	N = 2	Mean	Value
				Squared	
Reliability	4.2593	4.2027	4.0000	0.0038	0.244
Confidence	3.9815	3.8919	5.0000	0.0388	2.562
Rapport	4.3148	4.1622	4.0000	0.0121	0.777
Cooperation	4.1296	4.0135	4.5000	0.0120	0.773
Appearance	3.9074	3.9865	4.0000	0.0029	0.188
Expression	3.6481	3.5811	3.5000	0.0029	0.183
Empathy	4.0926	4.0811	4.5000	0.0053	0.336
Stamina	4.0185	4.0548	3.5000	0.0088	0.558
Taping	3.8889	3.9459	4.0000	0.0018	0.114
Treatment	3.8704	3.8243	4.0000	0.0018	0.112
Therapy	4.0000	3.8493	4.5000	0.0200	1.284
Recognition	3.5926	3.7973	4.5000	0.0384	2.534
Training	4.0000	3.9459	4.0000	0.0012	0.078
Records	3.7222	3.6622	4.0000	0.0025	0.157
Anatomy	3.5370	3.6622	3.5000	0.0067	0.425
Rehabilitation	3.4630	3.5833	4.0000	0.0130	0.821
Standards	3.9074	3.9189	4.0000	0.0003	0.016
NATA	3.6852	3.5676	4.0000	0.0080	0.509
Enthusiasm	3.9444	3.9189	4.5000	0.0095	0.610
Performance	3.8704	3.9459	4.5000	0.0181	1.170

Degrees of Freedom 2

No significant differences recorded

Dr. Bell currently is Director, Undergraduate Athletic Training Education; Program Supervisor, Therapeutic Exercise Research; Assistant Professor of Physical Education at the University of Illinois, Champaign, Illinois 61820.



Editor's Note: Anyone wishing to have an idea, technique, etc. considered for this section should send one copy to Ken Wolfert, Miami University, Oxford, Ohio 45056. Copy should be typewritten, brief, and concise, using high quality illustrations and/or black and white glossy photos.

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A Reexamination of Lewis' Cold-Induced Vasodilatation — In the Finger and the Ankle

K.L. Knight, PhD, ATC; J. Aquino, MS, ATC; S.M. Johannes, MS, ATC; C.D. Urban, MS, ATC

Many sports medicine authorities accept the cold-induced vasodilatation theory (CIVD) as an explanation for the dramatic success of cryokinetics in the rehabilitation of acute musculoskeletal injuries (1-6, 9). One of the pillars of support for this theory has been a 1930 paper by Lewis(11) entitled "Observations upon the reactions of the vessels of the human skin to cold," wherein the temperature of the finger was measured during and after immersion in ice water. Recently, however, Knight and Londeree (10) have challenged the cold-induced vasodilatation theory with a study showing a decrease in blood flow to the ankle during and after cold pack application. The seeming conflict between these two studies prompted the present reinvestigation of Lewis' work using both finger and the ankle.

Lewis(11) measured temperature (not blood flow) at the base of the fingernail during and after immersion of the distal two phalanges of the finger in ice water. A wide mouth glass beaker was filled with ice and water and a sheet of cork with a hole in its middle was placed over the mouth of the beaker. The hand was placed palm downward with the fingers extended on the cork platform. After preliminary readings were taken from two or more fingers, one finger was dropped through the hole into the water. One of the fingers remaining on top of the cork served as a control.

Numerous experiments were conducted using various fingers and a wide range of temperatures (0-18 degrees C) and times of immersion (10-20 min.). Neither descriptive nor comparative statistical procedures were used. Rather, individual experiments were illustrated and discussed. One such experiment, Figure 1 of Lewis' paper, is shown below. The right index finger (R2) was subjected to 15 minutes of immersion in 7 degrees C water. Of this experiment Lewis wrote: "On removing the cooled finger from the water its temperature rose abruptly and rapidly to a point many degrees above that of the control finger . . . (This after effect of cooling . . . is clearly a vasodilatation."

Since the aim of modality application during acute musculoskeletal rehabilitation is to increase blood flow to the injured part(3), Lewis' data provided a very plausible explanation for the clinical success of cryokinetics. Knight and Londeree(9) have shown that this is not so in the ankle. Blood flow to the ankle of uninjured subjects decreased during 25 minutes of cold pack* application, and further decreased during the 20 minutes following the application during which blood flow was measured. There clearly was no CIVD during nor after cold pack application.

*Chattanooga ColPaC®

Dr. Knight is an associate professor and athletic trainer at Indiana State University, Terre Haute, Indiana 47809. Mr. Aquino, Ms. Johannes, and Mr. Urban are all 1978 graduates of SUNY/Brockport, and received Master's degrees at Indiana State. Currently, Mr. Aquino and Ms. Johannes are athletic trainers for The Miami, Florida, and Albuquerque, NM, Public School systems respectively. Mr. Urban is the athletic trainer for Northeast Missouri State University.

Methodology

The methodology for the present study was essentially the same as Lewis'. A 20 x 20 x 15 cm square container held the ice water for the finger experiments. A cardboard platform with a hole in the middle was placed over the container. For the ankle experiments a 3 gallon plastic bucket held the ice and water.

A Yellow Springs Instrument Twelve Channel Telethermister was used for the temperature measurements. Surface probes were attached either to the distal palmar surface of the left third finger or to the lateral side of the left ankle 2 cm anterior to the malleolus. A second probe was placed in the water bath and a third was used to measure atmospheric temperature.

Six males volunteered to serve as subjects (Age = 2.5 ± 2.3). One subject continually had time conflicts and was never measured with the ankle. The order of treatments was randomized; with treatments being separated by a minimum of 48 hours.

Finger and ankle temperatures were taken every minute; atmospheric and bath temperatures were recorded every five minutes. Immersion lasted for 40 minutes; measurement continued for 35 minutes following immersion.

Results

Room temperature was maintained at 24.3 ± 1.3 degrees C for the ankle experiments and 26.0 ± 1.3 degrees C for the finger experiments. The water bath temperatures were 1.4 + 1.4 degrees C for the ankle and finger respectively.

Figure 2 represents a graph of the minute by minute temperatures. The finger reacted as Lewis reported: temperature decreased to 3 degrees C within the first five minutes, rose to 6.5 degrees C and then decreased again. Temperature rose to 24.6 degrees C within four minutes after removal from the ice. By 20 minutes post-immersion the temperature was 33.5 degrees C. It remained at that level for about 10 minutes and then began decreasing. The ankle reacted similarly during immersion, except there was no hunting effect (oscillation). Following immersion, however, the response was quite different. Temperature increased to 15.8 degrees C during the first 10 minutes and increased to only 19.2 degrees C 40 minutes after removal from the ice water. One subject was measured one hour and 30 minutes after removal. His ankle temperature was only 29.0 degrees C.

Table 1 included the mean temperatures and standard deviations for the ankle and finger at five minute intervals. T-tests between the ankle and finger and probability of statistical significance are also given.

Due to a more rapid decrease in the finger than in the ankle, the differences at 5 and 10 minutes were significant. From 15 minutes until the end of immersion there was no difference. At each of the five minute intervals following removal from the ice bath the differences were significant.

Discussion

These data cast further doubt on the CIVD theory as an

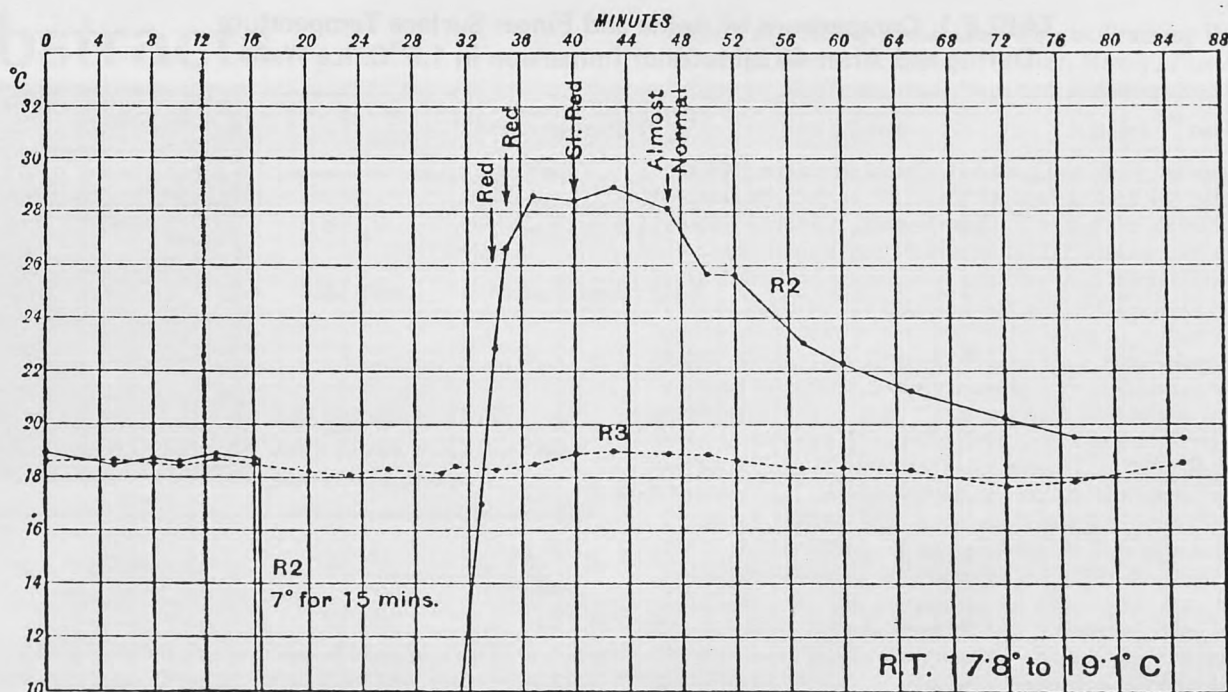


Figure 1. January 31, 1928. The right index finger (R 2) was cooled for 15 minutes at 7 degrees, the middle finger (R 3) being used as a control. To illustrate the rise of temperature following cooling. Room temp. (r. T.) is

given on this and subsequent charts. (from Lewis T: Observations upon the reactions of the vessels of the human skin to cold. *Heart*; 5: 177-208, 1930; reproduced by permission.)

explanation for the success of cryokinetics. In the finger, surface temperature did not increase appreciably above normal (32 degrees) following immersion in ice water, and in the ankle it did not approach normal 35 minutes after removal from the water. Further investigation of Lewis'(11) data revealed that this was also the case in his study. Even though the temperature in the experimental finger increased well above the control finger it was only up to 29 degrees C. which is below normal temperature for the finger. In other words, the temperature of the control finger was artificially lowered. There was no deception on Lewis' part, however. He stated: "To display vasodilatation as an after-effect of cooling without fail, it is not only necessary to use an adequate stimulus, but the initial temperature of the fingers and the room temperature must be suitable. Thus, if the fingers are very hot (32-34 degrees) at the start of the observation, it is obvious that they cannot become hotter or much hotter as an after-effect of the stimulus . . . Except in warm rooms the fingers, while held still, usually cool towards room temperature as time elapses." Although Lewis felt that fingers which were between 32-34 degrees C (90-93 degrees F) were very hot, we find this to be normal finger temperature for a person in a room of 70-75 degrees F. Lewis further defined adequate stimulus as an immersion bath of 10 degrees C or lower.

The problem with Lewis' data is that they have been misinterpreted by a number of people applying them to sports medicine and physical therapy(2,4,7).. This misinterpretation has lead to questionable rehabilitation procedures.

Some are treating musculoskeletal injuries with only ice application, assuming they are getting an increase in blood flow to the area. Most people who espouse this theory admit that blood flow decreases during cold application, but that the increase following immersion will be great enough and last long enough to provide an overall net increase in blood flow as a result of the cold application. If increasing blood flow to the injury is the key to increasing the rate of healing, as assumed(3), these procedures not only are failing to promote healing, but actually retarding healing by decreasing blood flow for a

period of time, especially in the ankle.

When Grant(7) and Hayden(8) introduced cryokinetics as a rehabilitation procedure, Grant postulated that early motion and restoration of normal function in the injured area was the key to symptomatic improvement. He felt the use of ice is simply an adjunct measure utilized to relieve pain and allow such early motion. Knight and Londeree(10) have presented data to support that theory. They found that blood flow decreased during and following cold pack applications to the ankle. When moderate exercise (walking on a treadmill at 3.5 mph) was combined with cold applications by being interspersed at three minute intervals, blood flow was significantly greater than both control and heat pack applications. Although the present data do not substantiate our earlier findings, they do cast doubt on the cold induced vasodilatation theory, and thus add insight to un-

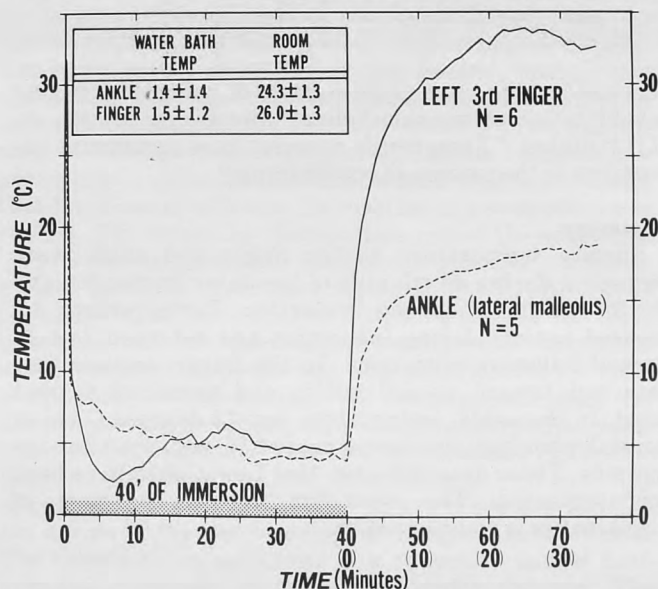


Figure 2. Finger and ankle temperatures during and after 40 minutes of immersion in ice water.

TABLE 1. Comparisons of Ankle and Finger Surface Temperature During and After 40 Minutes of Immersion in 1.5°C. Ice Water

Time (min)	Ankle	Finger	T	p	
0	30.7 ± 2.6	31.8 ± 3.2	0.58	.57	
5	7.4 ± 1.6	2.8 ± 1.2	-5.38	.001	
10	6.1 ± 1.1	3.2 ± 2.6	-2.27	.05	
15	5.6 ± 1.6	5.3 ± 2.5	-0.23	.83	
20	5.0 ± 2.0	5.3 ± 1.9	-0.27	.79	
25	4.6 ± 1.7	5.8 ± 2.4	0.97	.36	
30	4.1 ± 1.4	4.5 ± 2.4	0.39	.71	
35	4.1 ± 1.4	4.7 ± 2.5	0.48	.64	
40	4.0 ± 1.9	5.0 ± 2.8	0.74	.48	
(Removed from ice water after the 40 minute measurement)					
45	5	13.7 ± 1.1	26.2 ± 6.1	4.46	.002
50	10	15.7 ± 0.5	29.6 ± 5.8	5.31	.001
55	15	17.0 ± 0.7	31.6 ± 3.8	8.34	.001
60	20	17.4 ± 1.1	32.6 ± 2.4	12.83	.001
65	25	18.1 ± 1.1	33.7 ± 1.3	19.86	.001
70	30	18.4 ± 1.3	33.1 ± 2.2	12.51	.001
75	35	18.7 ± 0.6	32.4 ± 2.8		
130	90	29.5 one subject			

derstanding the physiological basis of using cold during rehabilitation of musculoskeletal injuries. As Moore, et. al.(12) stated, "Therapeutic exercise is of paramount importance to the success of cryotherapy."

Summary

Surface temperature to the finger and ankle were measured during 40 minutes of ice water immersion and for 35 minutes following immersion. Temperatures decreased rapidly during immersion and returned toward normal following immersion. In the finger, temperature returned toward normal within and remained at that level. In the ankle, temperature was 12 degrees C below normal when measurements ceased 35 minutes after immersion. These data indicated that Lewis' data have been misinterpreted. The need for exercise as part of cryokinetics is emphasized. +

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Abstracts



ABSTRACTS EDITOR
John Wells, ATC, PT, PhD
Mars Hill College

"Jock Itch," Brodin, M. B., *The Physician and Sports-medicine*: 102-108, February, 1980.

Jock itch is defined as eruptions of the inguinal skin and adjacent genitalia. Over 90 percent of inguinal eruptions fall into five diagnostic categories: (1) Tinea Cruris, (2) Candidiasis, (3) Erythrasma, (4) Contact Dermatitis, and (5) Intertrigo. Tinea Cruris is an infectious dermatitis occurring on the inner surfaces of the thighs and caused by certain species of the dermatophyte fungi, most often epidermophyton. It frequently arises from an infection elsewhere, such as tinea pedis (athlete's foot) or tinea unguium but can be transferred by direct contact. The clinical appearance is a raised border of activity with a clearing central area forming the annular morphology of ringworm. This raised border is often scaly and rather sharply demarcates the peripheral normal skin from the eruption. The diagnosis is established by obtaining either a positive KOH wet mount preparation or a positive fungal culture. Treatment of tinea cruris with topical medications is usually successful if care is taken to eradicate all foci of infection. Candidiasis results from the colonization of chafed and eroded inguinal skin by candida albicans and is more frequent in patients with diabetes mellitus. The lesions are the "satellite" papules or pustules, which look like islands off the main coast of the eruption. Often the rash is partially eroded, foul smelling, and displays a cheesy exudate. Diagnosis is confirmed by a KOH or fungal culture. In acutely inflamed eruptions it is preferable to treat with tap water compresses for 20 minutes, three times a day until the acute phase subsides. A topical anticandidal agent can then be applied. Erythrasma is a chronic infection caused by diphtheroid, coryne bacterium minutissimum. The clinical appearance is a diffuse, reddish brown eruption with fine, dry, scaling and slightly wrinkled skin. Treatment consists of systemic erythromycin of 1 gm per day. Contact dermatitis may be the result of either primary irritation or a true allergy of the delayed type. Clinical clues are the acute exacerbation of a pre-existing inguinal eruption and the presence of erythema, edema, and vesiculation. Treatment includes avoiding further contact, drying compresses, locally applied corticosteroid preparations, and investigation of the underlying condition. Intertrigo is a noninfectious inflammatory response of the skin to friction and maceration. Tight-fitting garments, athletic supporters, and obesity are contributing factors. The clinical appearance is redness and thickening at friction points. Therapy consists of elimination of the irritation and chafing.

Sam Brown

"Effects of a Heavy-Resistance Weight Training Program on College Women Athletes", Oyster, Nancy, *The Journal of Sports Medicine and Physical Fitness*, 19(1):79-83, 1979.

High resistance weight training is widely accepted as a method of muscle building in males, but its effects on females remains unanswered. The author attempted to discover if high resistance weight training can enhance body composition without concomitant masculinizing effects or marked changes in body weight. Fourteen college age women tennis players were used as subjects for a seven week, two times a week, high resistance weight training program. Measurements were taken for skinfold, girth, and strength at the beginning and again one week prior to termination of the program. They showed that after six weeks of high intensity weight training the women athletes had increased in seven of the nine strength measures taken. The greatest changes occurred in the lower extremities. A comparison of the pre-post girth measures showed a decrease. These decreases were significant on the measures of the lower leg, inspired chest, and lower arm girth. Likewise the skinfold thicknesses also decreased. None of them were significant. Weight remained essentially the same and the body fat decreased slightly, although not significantly. This would indicate that the decreases in girth measures were not due to decreases in body fat. The author noted that it was interesting that strength increases were not accompanied by significant changes in weight, skinfold or girth measurements.

Tim Carl

"Pain: Its Physiology and Rationale for Management Part II Analgesic Systems of the CNS," Beverly Bishop, PhD, *Physical Therapy: Journal of the American Physical Therapy Association* 60: 21-23, January, 1980.

Morphine and other opiates have been used for the relief of pain and other medicinal purposes for centuries. Only very recently has the mechanism by which morphine produces its analgesic effects been elucidated. Biochemical assays have revealed opiate receptors throughout the brain and neuroaxis. The brain areas with the highest receptor count are the midline and intralaminar nuclei of the thalamus. The amygdala, the periaqueductal gray matter, the hypothalamus, and the medial thalamus also have a very high receptor density. The exact action of opiates is now known. One current hypothesis proposes that the opiate receptor oscillates between two forms: in one form it binds sodium and the other it releases sodium. Apparently, opiate receptors are postsynaptic units that combine with a neurotransmitter that functions by altering the membrane's conductance to sodium. The foregoing observations raised the questions: "Why does the brain have specific receptors for morphine, a plant alkaloid? Are there morphine-like substances in the body?" The immediate and striking answer for these questions was the discovery of endogenous compounds with morphine-like properties. The generic term for these compounds is endorphine. All endorphines thus far discovered are peptides. The major endorphines identified in the brain to date are methionine, enkephalin, leucine enkephalin, and B-endorphine. When the enkephalins combine with the opiate receptors, usually the action of the cell bearing the receptor is depressed. The functional consequence is a reduction in the postsynaptic potentials in the second order neurons. The neurons presumably make up specific neuronal systems that mediate the integration of sensory information

relating to pain and emotional behavior. B-endorphine is a very large peptide molecule consisting of a long sequence of amino acids. It is contained in virtually all cells of the anterior lobe. B-endorphine produces a wide spectrum of relatively long-lasting effects. This and other evidence suggests that B-endorphine serves as a chemical messenger rather than as a neural transmitter. Its actions include analgesia, catatonia, and behavior disturbances.

Tom Rolen

"Considerations in Ultrasound Therapy and Equipment Performance," Harold F. Stewart, Jesse L. Abzug, and Gerald R. Harris, *Physical Therapy: Journal of the American Physical Therapy Association* 60: 424-427, April, 1980.

The total power radiated by the applicator or sound head in the form of ultrasonic radiation is known as ultrasonic power, usually expressed in watts. Ultrasonic power is an important variable because, along with exposed time, it determines the amount of energy delivered to the tissue. Another variable that one should be aware of is intensity, or power per unit area, usually expressed in watts per square centimeter (W/cm^2). Intensity can vary in both time (that is, continuous or pulsed) and space. The ultrasonic intensity distribution across the sound field is not uniform. Because of the nature of the ultrasonic field, "hot spots" can be produced, possibly resulting in excessive heating in small regions of the volume of tissue being treated. The therapist should have a knowledge of the sound-field distribution in order to apply therapeutic ultrasound judiciously. The applicator label must classify the ultrasonic beam as being focusing, collimating, or diverging and must state the effective radiating area. Many users of ultrasonic therapy use a simple technique for verifying that the soundhead is emitting ultrasonic radiation. A thin layer of coupling medium (water, gel, or mineral oil) placed on the surface of the applicator will show bubbles when power is applied to it. Regardless of how well the equipment is calibrated, a potential risk is associated with the use of ultrasonic therapy equipment. Simulating conditions under which ultrasonic therapy is given, Herrick was able to destroy the sciatic nerve in dogs without affecting the histologic structure of the surrounding muscle. Bone damage has been observed in dogs after exposure to ultrasound. For a moving sound field, the threshold limit for bone damage in dogs is about $3 W/cm^2$. This threshold would also be expected to depend on the treatment area and the exposure time. Ultrasonic therapy devices can produce potentially hazardous levels of radiation. The user must maintain his equipment in proper working condition and be well informed about both the beneficial and harmful biological effects of ultrasonic radiation.

Andy Behl

"Transmissiveness of Ultrasound Through Tap Water, Glycerin, and Mineral Oil," James E. Griffin, *Physical Therapy: Journal of the American Physical Therapy Association* 60: 1010-1016, August, 1980.

Efficient transmission of energy from a clinical ultrasonic source to the patient requires a liquid or semisolid coupling agent. The first reported study comparing transmissiveness of ultrasound through clinically useful couplants was by Reid and Cummings. They found that a widely used thixotropic gel transmitted about 70 percent of the transducer's energy output; glycerin, 68

percent; degassed water, 60 percent; and mineral oil, 20 percent. The space between transducer and receiver was 3mm and filled with couplant. They concluded that with standard direct-contact method of administering ultrasound, there was no significant difference in transmissiveness among the couplants studied. The present data do indicate a significant difference in transmissiveness among water, glycerin, and mineral oil, with greatest transmissiveness in tap water. On the basis of the above data, plus the cost differential in using large volumes of these liquids (water vs mineral oil at \$1/liter and glycerin at \$8/liter), there seems to be no justification for using any liquid other than water as an immersion couplant. Immersion treatment is an easy way to raise the temperature of subcutaneous tissue in the distal extremities. The treatment is chiefly used to obtain pain relief in hands or feet after musculoskeletal trauma or for chronic arthritis. A comparison of the relative transmissiveness of ultrasonic energy through large volumes of tap water, glycerin, and mineral oil was done to simulate clinical immersion techniques. Transmissiveness through water was significantly better than through the nonaqueous liquids at all intensities and distances studied. Temperature increases in the nonaqueous liquids were significantly greater than in water with the highest increase in glycerin. Hence, if the clinical objective is to induce an infrared effect as well as an ultrasonic effect, use of preheated water or a nonaqueous couplant should be considered as a treatment method.

Andy Behl

"DMSO: No Proof of 'Miracles'," *F.D.A. Consumer*: 28-29, September, 1980.

DMSO is a drug, dimethyl sulfoxide, that has become a center of public attention. DMSO, a well-known industrial solvent (its a by-product from pulp wood manufacturing) has been on the market since the 1940's. In 1959, the medical profession found it useful in protecting biological tissues from damage when preserved by freezing. With further research in 1963, DMSO was reported to penetrate skin rapidly, to have local analgesic activity, and to decrease swelling and promote healing. However, widespread, uncontrolled use of DMSO was halted in 1965, after studies showed the drug had adverse effects on the eyes of experimental animals. Because of the continuing controversy over DMSO, the National Academy of Sciences was asked to review information on the effectiveness and toxicity of the drug. The report stated (1) there was inadequate scientific evidence of the effectiveness of DMSO for treating any disease (2) the toxicity potential was significantly great, and (3) controlled clinical investigations were necessary to demonstrate its effectiveness. At present time, DMSO is approved only for use in treatment of interstitial cystitis. However, there have been cases where veterinarians are advertising the drug for human use. The danger in this practice is that the veterinary product is almost twice as potent as the human-use formula. The FDA and The Arthritis Foundation have a similar message. "There is no evidence that DMSO is a "miracle drug" as claimed by its proponents, it isn't worthless either. The drug appears to work as a local analgesic but there is no scientific proof that it reduces swelling and inflammation.

Tim Carl

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- Output voltage continuously adjustable from 0 to 500 volts peak.
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CONSTITUTION OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

ARTICLE I

NAME

The name of this organization shall be the National Athletic Trainers' Association.

ARTICLE II

OBJECTIVES

The objectives of this association shall be:

1. The advancement, encouragement, and improvement of the athletic training profession in all its phases, and to promote a better working relationship among those persons interested in the problems of training.
2. To develop further the ability of each of its members.
3. To better serve the common interest of its members by providing a means for a free exchange of ideas within the profession.
4. To enable members to become better acquainted personally through casual good fellowship.

ARTICLE III

MEMBERSHIP

Section 1

There shall be eleven (11) classes of membership as follows:

- | | |
|--------------|------------------------------|
| 1. Certified | 7. Allied |
| 2. Associate | 8. Honorary |
| 3. Retired | 9. Retired, Non-Certified |
| 4. Student | 10. Library |
| 5. Affiliate | 11. Affiliate, International |
| 6. Advisory | |

and no individual shall be eligible for more than one (1) class of membership at the same time.

Section 2

Qualifications for membership and the rights and obligations of members shall be as indicated in the By-Laws.

ARTICLE IV

ELECTION OF MEMBERS

Section 1

Application: Each applicant for any class of membership shall sign an application stating his desire and intention to become a member of the Association, to advance its best interests in every reasonable manner and to accept as binding upon himself its constitution and By-Laws.

Section 2

Membership in the National Athletic Trainer's Association is based on approval of each District's membership committee, the National Athletic Trainers' Association membership committee, in addition to completion of requirements for membership as listed in the By-Laws.

ARTICLE V

DUES

Section 1

The dues of all classes of members shall be as prescribed by the By-Laws.

ARTICLE VI

SUSPENSION OF MEMBERSHIP

Section 1

Membership cancellations may be recommended by any member of the Association for a cause and the membership of any member be caused to cease by a two-thirds majority vote of those members present at the annual business meeting.

Section 2

Appeals:

A person whose membership is cancelled in accordance with Section 1 shall be allowed, either in person or through some member of the Association, to appeal to the National Membership Committee for reconsideration. Information in the appeal shall be presented to the Board of Directors and the Board shall, by majority vote, decide whether to submit the question of the membership cancellation to the Association membership for another one in accordance with Section 1.

ARTICLE VII

VOTING POWER

Section 1

Certified and certified retired members shall be entitled to one vote upon all questions submitted to the Association for decision.

ARTICLE VIII

ORGANIZATION

Section 1

National: The governing body of this organization shall be the Board of Directors.

Section 2

Regional: Each District Athletic Trainers' Association will be self-governing as per its own specific Constitution and By-Laws. Nothing in a District Constitution and By-Laws shall be contrary to the National Constitution and By-Laws. In its relations with the National Organization, the District Association will be under the jurisdiction of the National Athletic Trainers' Association Constitution and By-Laws.

- A. For the purpose of facilitating the work of the National Athletic Trainers' Association the United States and Canada shall be divided into ten (10) geographic areas and each district organization shall have district jurisdiction throughout one of the areas. District area boundaries shall be set by the Board of Directors, and the districts shall be designated and identified by the numbers one (1) through ten (10).
- B. Each District shall elect a District Director who must be a Certified member of the National Athletic Trainer's Association. Each District Director shall serve as a member of the Board of Directors of the national organization and act with full authority for the district in carrying out the functions and responsibilities of The Board of Directors.

Section 3

- A. *President:* The President shall be elected by a majority popular vote of the voting membership of the National Athletic Trainers Association. The

Board of Directors shall be the nominating committee. Candidates must have served on the Board of Directors some time during the four years immediately preceding the meeting at which nominations are made. Two candidates shall be nominated at the meeting in June one year before the end of the term of the current President. The biography of each candidate shall be published in the fall issue of the *Journal of the NATA Athletic Training* following the nominations.

The membership voting shall be by mail. A ballot shall be mailed to each voting member at his/her address of record by November 15th and the marked ballot must be returned by mail to the Executive Director at the designated address and be postmarked no later than December 1st.

The term of the President shall be two years and he/she may not serve more than two consecutive terms. The term of office shall begin at the business meeting of the Association at the Annual Meeting and Clinical Symposium following the election.

- B. *Vice President*: The District Director from one of the ten districts shall be elected to the office of Vice President by the Board of Directors. One or more district directors may be nominated by members of the Board and election shall be by majority vote.

The Vice President must be a District Director, also. If the Vice President ceases to be a District Director a new Vice President must be elected.

The term of office of the Vice President shall be one year and he/she may be reelected.

If the office of President becomes vacant before the end of the term for which the President was elected, the Vice President shall become President immediately and shall serve as President for the remainder of the term for which the previous President was elected. In the event that the President-elect is unable to assume the office of President, the Vice President shall become the President-elect and then become President at the beginning of the term for which the original President was elected, and serve for the full term. It is therefore possible that a vice-president could serve a partial term as President followed by a full term. In such a circumstance a President shall be eligible for nomination and election for one consecutive term following the first full term.

The Vice President has no constitutional duties other than to assume the office of President or President-elect as prescribed.

Section 4

Removal of Officers: All national officers may be impeached and convicted on the following grounds; embezzlement, malfeasance in office, and actions contrary to or in violation of this Constitution and its By-Laws. Before impeachment proceedings can be instituted a brief, containing the charges shall be drawn up and presented by a board member to the Board of Directors sitting in executive session. The aforementioned brief must then be adopted by a majority vote prior to the formal presentation of the charges. Impeachment of any officer shall require a two-thirds vote of the voting membership of the Association present at the annual meeting.

ARTICLE IX POWERS AND DUTIES OF OFFICERS

Section 1

The officers are the President, Vice-President, Board of Directors and Executive Director.

Section 2

All powers and duties of officers are as prescribed in the By-Laws and Article VIII Section 3 of the constitution.

ARTICLE X COMMITTEES

All committees, except the membership committee, shall be appointed by the President with the approval of the Board of Directors.

ARTICLE XI MEETINGS

Section 1

The annual business meeting shall be held each year at a time and place set by the Board of Directors.

A quorum for the annual meeting shall consist of one-fifth of the voting membership of the Association, excluding Certified Retired members in figuring the one-fifth.

Section 2

The Board of Directors may submit items of association business to the voting membership for a vote by mail. Approval of items so submitted shall require a "yes" majority of a response of at least one-fifth of the voting membership of the association.

Section 3

The Board of Directors shall meet at the National Convention and at any other time that the President determines it necessary to call a Board meeting.

A quorum for a Board of Directors meeting shall be six (6).

The President may submit appropriate items of Association business to the Board of Directors for a vote by mail. For such a voting procedure the President shall first secure a "second" to the proposal and then submit the proposal to each member of the Board by mail with a request to mail a "yes" or "no" vote on the proposal by a definite date not sooner than ten (10) days after the mailing of the proposal. Board approval of items submitted shall require a "yes" vote of at least six members of the Board.

The President may submit emergency items of Association business that are appropriate for Board action to the Board of Directors for a vote by telephone. For such a voting procedure the President shall first secure a "second" to the proposal and then call each member of the Board for his vote on the proposal. Board approval of items so submitted shall require a "yes" vote by at least six members of the Board.

ARTICLE XII AMENDMENTS TO THE CONSTITUTION

Section 1

All proposed amendments to the constitution shall be submitted in writing to the Executive Director at least six weeks prior to the annual business meeting. The Executive Director shall distribute copies of the proposal to all voting members at least three weeks prior to the annual business meeting.

Section 2

A proposal amendment to the constitution that has been properly submitted shall be read at the annual business meeting and a two-third (2/3) majority vote of the voting membership present shall be necessary for the adoption of the said amendment.

ARTICLE XIII AMENDMENTS TO THE BY-LAWS

The By-Laws may be amended at any official meeting of the Board of Directors by a majority vote.

By-Laws may not be added, deleted or amended by a vote by mail or telephone.



National Athletic Trainers Association

Code of Ethics

Revised June 1980

PREAMBLE

One outstanding characteristic of a profession is that its members are dedicated to rendering service to humanity. Also, they are committed to the improvement of standards of performance. In becoming a member of the athletic training profession, the individual assumes obligations and responsibilities to conduct himself in accordance with its ideals and standards. These are set forth in the Constitution and By-Laws, and are emphasized in the CODE OF ETHICS. Any athletic trainer who does not feel that he/she can or does not deem it necessary to comply with the principles set forth in the CODE should have no place in this profession.

The members of the athletic training profession must adhere to the highest standards of conduct in carrying out their significant role in athletic programs at all levels. It is for this reason that the Board of Directors of the National Athletic Trainers Association has continually revised the CODE which has been in effect since June, 1957.*

In approving the Code, the Board of Directors recognizes and believes that unless the standards and principles that are set forth in this document are accepted in good faith and followed sincerely, it will not be effective in continuing to improve the contributions of the profession and its members to athletics and sports-medicine.

Ethics is generally considered as conduct in keeping with moral duty, and making the right actions relative to ideal principles. Let it be understood that all members of the National Athletic Trainers Association will understand and apply the principles set forth in this CODE, and make every effort to do the right thing at the right time to the best of their ability and judgment.

*1971, 1973, 1974, 1976, 1977, 1978, 1979, 1980.

Purpose

The purpose of this CODE is to clarify the ethical and approved professional practices as distinguished from those that might prove harmful or detrimental, and to instill into the members of the association the value and importance of the athletic trainers' role.

Objectives

The stated objectives of the National Athletic Trainers Association in its constitution are:

1. The advancement, encouragement and improvement of the athletic training profession in all its phases, and to promote a better working relationship among those persons interested in the problems of training.
2. To develop further the ability of each of its members.
3. To better serve the common interest of its members by providing a means for free exchange of ideas within the profession.
4. To enable the members to become better acquainted personally through casual good fellowship.

Article I – Basic Principles

The essential basic principles of this CODE are Honesty, Integrity and Loyalty. Athletic trainers who reflect these characteristics will be a credit to the association, the institution they represent and to themselves.

When a person becomes a member of this Association

he/she assumes certain obligations and responsibilities. A trainer whose conduct is not in accordance with the principles set forth in the following sections shall be considered in violation of the CODE.

Section 1 – Athletics in General

An athletic trainer shall show no discrimination in his/her efforts while performing his/her duties.

Section 2 – Drugs

The membership of the National Athletic Trainers Association does not condone the unauthorized and/or non-therapeutic use of drugs. The Association recognizes that the best and safest program is comprised of good conditioning and athletic training principles.

Section 3 – Testimonials and Endorsements

In any endorsement in which the trainer's name and/or reference to the athletic training profession is included, the wording and illustration, including any implications of the endorsement shall be such that no discredit to the training profession may be construed. (Any endorsement that is not in keeping with the highest principles and standards of the athletic training profession shall be considered unethical). The NATA name, logo, trademark and/or insignia may not be used in any testimonials and/or endorsement service products, programs, publications and facilities, by individual members or groups of members of the Association.

Section 4 – Sportsmanship

Members of this Association shall not condone, engage in or defend unsportsman-like practices.

Section 5 – Fellow Trainers

Any trainer who by his/her conduct or comments, publicly discredits or lowers the dignity of members of his profession is guilty of breach of ethics.

Section 6 – Membership

It is unethical for a member to sponsor a candidate for membership in the National Athletic Trainers Association who does not know the candidate and his/her qualifications.

Section 7 – Solicitation of Patients for Fee

It is unethical for a member that is actively engaged in the profession, and/or teaching in an approved Education Curriculum to solicit or use any form of advertising for the purpose of acquiring for fees, "outside" patients. (See last page for definition of actively engaged.)

Article II – Educational Preparation & Certification

Any certified member of this Association must be considered an educator if he/she is involved with the professional preparation of students pursuing National Athletic Trainers Association Certification through any of the approved certification routes.

Section 1 – Educational Standards

The athletic trainer-educator must adhere to the educational standards and criteria set forth by this Association.

Section 2 – Selection of Students

The athletic trainer-educator is responsible for the selection of students for admission into a professional preparation program, must insure that policies are non-discriminatory with respect to race, color, sex, or national origin.

Section 3 – Publication and Representation

Publication and representation of the professional preparation program by the athletic trainer-educator must accurately reflect the program offered.

Section 4 – Evaluation of Students

Evaluation of student achievement by the athletic trainer-educator must be done in a prudent manner.

Section 5 – Recommendation for Certification

It is unethical for a member to knowingly recommend a candidate for the national certification examination who has not fulfilled all eligibility requirements as specified by the Board of Certification.

Section 6 – Confidentiality of National Certification Examination

It is unethical for any member to reproduce in written form, or reveal in any other manner, any part of the written or oral-practical examination for the purpose of aiding certification candidates in passing the examination.

Article III – Enforcement

Section 1 – Reporting of Unethical Conduct

Any member of the Association who becomes aware of conduct that he/she considers unethical and that he/she believes warrants investigation, shall report the incident(s) in writing to the President and the Executive Director of the Association, who will in turn initiate investigation through the Ethics Committee. He/she shall include in the communication all pertinent data.

Section 2 – Investigation and Action

In accordance with the By-Laws of the Association, the Ethics Committee investigates reported incidents of unethical conduct and if, in the judgement of a majority of the committee members, it finds that the accused person has violated the National Athletic Trainers Association Code of Ethics, it communicates its decision to the accused and to the Board of Directors in writing and recommends to the Board one of the following disciplinary actions:

1. *Letter of Censure*
Copies to immediate supervisor and District Director.
2. *Period of Probation:* (This shall be determined by the Board of Directors) During the period of probation the member shall not be eligible for any of the following:
 - a) Hold an office at any level in the Association.
 - b) Represent NATA in the capacity of liaison with another organization.
3. *Initiate Procedure for Cancellation of Membership*

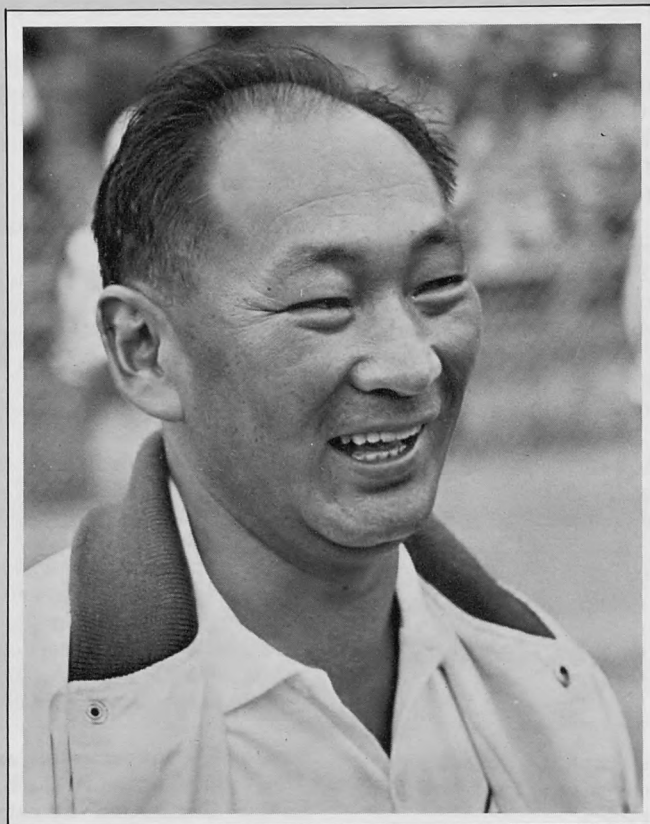
Section 3 – Action by the Board of Directors

This decision of the Board of Directors in Code of Ethics is final, except that if the decision is to initiate cancellation of membership, this shall be done as prescribed in Article VI, Section 1 and 2 of the Constitution.

The National Athletic Trainers Association 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 duration of the institution's school year or for the length of the athletic organization's season and who performs the duties of the athletic trainer as a major responsibility of his employment; or whose responsibility is the teaching in an NATA approved athletic training curriculum is actively engaged in athletic training.

In Memoriam



Lincoln T. Kimura
August 9, 1923 — June 3, 1980
San Francisco 49ers Football Club

Born in San Jose, CA, "Linc" attended San Jose High School and graduated from San Jose State University. He received his masters degree from Stanford University in 1952.

As the first head trainer for San Jose State, "Linc" was in charge of the entire athletic program. In conjunction with his duties at State, Kimura served as an assistant trainer with the San Francisco 49er Football Club.

In 1963 "Linc" was named head trainer for the 49ers. He was elected to the National Athletic Trainers Hall of Fame in 1974. He was a co-founder of the NATA and a charter member of the Pacific Coast Trainers Association.

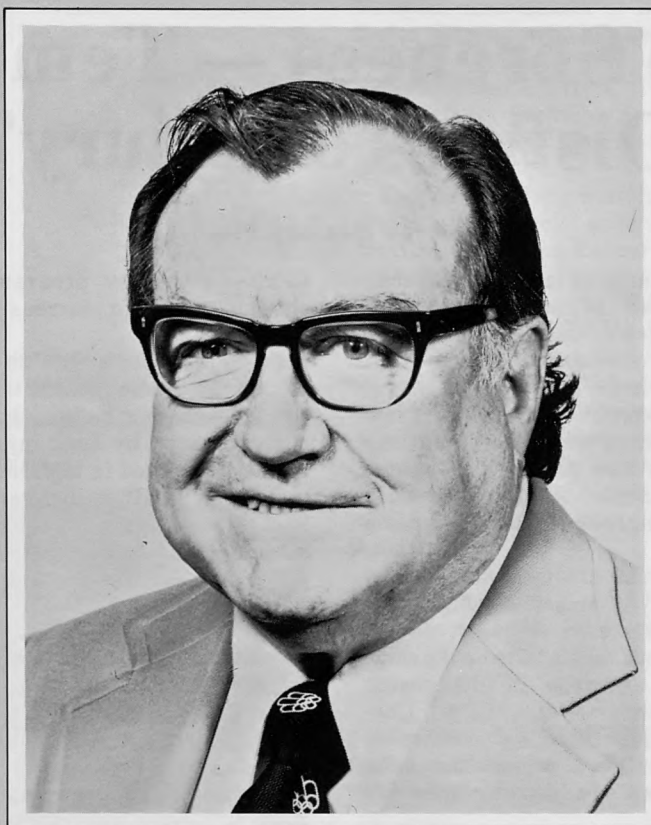
Kimura, a soft-spoken individual, was nearly a legend in athletic circles as being a man of few words. Former 49er assistant coach and Cincinnati Bengals head coach, Bill Johnson acknowledged "Linc" as a "... wizard at coping with the weekly crop of aching backs, pulled muscles, and damaged knees."

"Linc" defined, "A trainer, probably is a composite of a doctor, nurse, physical therapist, amateur psychologist and maybe a sociologist too."

A WW II veteran, Kimura served in America's famed all-Japanese-American combat unit the 442nd Infantry combat unit. Following his tour of duty "Linc" graduated from San Jose State. He was a physical therapist for the Visiting Nurse Association Inc. in Santa Clara before he died.

Kimura was admitted to San Jose Hospital on May 12, 1980 for kidney failure. He died in the same hospital where he was born fifty-six years ago. He is survived by his wife, Mary Kimura and two daughters, Theri and Chiyieko Kimura; six brothers and sisters; and his mother, Midori Kimura.

In Memoriam



William R. Robertson
March 6, 1915 — November 5, 1980
Oregon State University

Bill "Ropes" Robertson, Head Trainer at Oregon State University died suddenly on November 5, 1980. "Ropes" had been the Head Trainer at OSU since 1946, which is when he became the first full time athletic trainer at OSU.

Robertson was born in Nanimo, British Columbia on March 6, 1915. His family moved to the United States when he was at an early age. He attended schools in Portland, Oklahoma and Corvallis and graduated from Benson Tech in Portland in 1934. He entered Oregon State in 1937 after working 3 years at the Multnomah Athletic Club in Portland.

When the war began Bill entered the U.S. Army. He saw duty in 1942-43 in The Aleutians and in 1944-45 in Italy as a Ski Trooper in the 87th Mountain Division. It was here that he received his nickname "Ropes". The name came from the rope soled shoes he and fellow troopers wore for mountain climbing.

Following the war he returned to Oregon State as their trainer. He received his Bachelors Degree in 1948 from OSU.

During his tenure at Oregon State Bill received many

honors. He was inducted into the NATA Hall of Fame and in 1964 was a trainer for the U.S. Olympic Teams in Tokyo. In 1967 he went to the far east to stage clinics for the Department of Defense. Among the places visited were Hawaii, Japan, Korea, Vietnam and Thailand.

Bill served for 18 years as a trainer for the State High School Shrine Game. Here he developed friendships with many prepsters who later played at OSU. Many ex-athletes upon returning to visit OSU would stop in to see "Ropes" first thing. During their career Bill had been like a father or older brother to them and he wasn't forgotten by them.

Bill was a good family man. He is survived by his wife Mary, three children, son Bill, and daughters Penny and Nancy. Bill also had three grandchildren.

Bill was a fine trainer and will be missed by fellow trainers, athletes and friends.

The family requests that memorials be sent to: William R. Robertson Memorial Fund, OSU Beaver Club Office, Gill Coliseum, Oregon State University, Corvallis, Oregon 97331.

Muscle Soreness – Temporary Distress or Injury?

George T. Jessup, PhD

One of the most perplexing questions facing the trainer and coach is the identification of muscle soreness resulting from an injury to muscle or connective tissues rather than the typical delayed soreness resulting from the accumulation of metabolites. In many instances, if there is a question as to the implications of the soreness, the athlete is continued in training until the symptoms become more pronounced. It is now possible to gather data on athletes which will indicate whether the soreness is related to tissue damage or simply to temporary muscle ischemia.

There are two substances which are measured in the urine that indicate the possibility of muscle or connective tissue damage. Myoglobin release is thought to be specifically associated with both skeletal and cardiac muscle injury, and is more accurate in diagnosing muscular damage than muscle enzymes (i.e., CPK). Connective tissue damage can be identified by monitoring urinary hydroxyproline (OHP) level, which has been shown to be a specific breakdown product of connective tissue.

Urinary myoglobin is elevated only following heavy exercise in which some muscle damage has occurred. Therefore, the presence of elevated myoglobinuria levels should indicate that some muscle damage has occurred. This finding in itself, might not cause the trainer or coach

to alter a training program for a particular athlete, but should cause an increased awareness of the injury possibility.

Baseline urinary OHP levels vary greatly from athlete to athlete. We suggest establishing baseline urinary OHP levels on those athletes who are identified as being potentially affected by such injuries (i.e., some sprinters and runners engaged in high intensity interval training). Normal urinary OHP values range from 12 to 40 mg/24 hours, and elevated values range from 15 to 44 mg/24 hours. Because of large individual variability in baseline values, it is essential to obtain this information for each athlete.

Experiments in our laboratory have indicated that muscle soreness is quite often caused by a delayed neuromuscular spasm which results in ischemia in the muscle. It has been hypothesized that delayed muscle soreness associated with this ischemia is both temporary and non-traumatic. We have obtained good results in reducing delayed muscle soreness by cryotherapy intervention. It should be noted that cryotherapy and other more aggressive treatments of soreness will be of no value in treating the damaged connective tissue, if present. †

Dr. Jessup is Director of the Human Performance Research Laboratory at Texas A&M University, College Station, Texas 77843.

Editor's Note: Anyone wishing to have an idea, technique, etc. considered for this section should send one copy to Ken Wolfert, Miami University, Oxford, Ohio 45056. Copy should be typewritten, brief, and concise, using high quality illustrations and/or black and white glossy photos.

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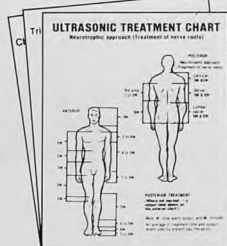
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Flashbacks in NATA History



Chris Neuman
Kansas State University

GUESS WHO???



This gentleman (standing, far left) was the Head Trainer at Duke University when this picture was taken in 1969. (See answer on page 264.)

* * * * *

MEMBER CREDITS AND AWARDS

The National Athletic Trainers Association was formally organized in 1950 by a small group of dedicated individuals. Although the organization has come far in the past thirty years, we are still a young, struggling profession. It's an exciting opportunity to be a part of this association of intent professionals, to witness the continual growth. And, it's our own membership which makes our organization so dynamic. In an effort to acknowledge

our members and therefore our organization, we would like to call attention to the following achievements.

Eugene "Doc" Harvey

In March 1980, Eugene Harvey, Head Trainer at Grambling University in Louisiana, was elected into the National Association of Intercollegiate Athletics Hall of Fame. Harvey, who has been at Grambling since 1958 after working professionally with the Brooklyn and Los Angeles Dodgers from 1951-57, also received the NAIA Meritorious Service Award. "Doc", as he is more familiarly known, has also received the NATA Twenty-Five Year Award.

Currently, along with his Grambling duties, Harvey is serving as a special consultant for the State of Louisiana Health and Human Resources Commission.

Ed Motley

Virginia Tech's Ed Motley was honored last September 21, 1979 by being voted into the Virginia Sports Hall of Fame's newly established Wall of Fame. Motley was part of the initial group of sports figures from Virginia's South-west Region who were so honored. This recognition is a preliminary step to becoming a candidate for the Hall of Fame. Pictures of these individuals will be hung on a special wall at the state Hall of Fame building in Portsmouth.

Motley, a three sport star at Petersburg High School himself, became a member of the Tech staff as Head Trainer in 1952. Ed is presently working every day as Tech's trainer for their five women's teams.

Leo Murphy

On Tuesday, May 27, 1980 Leo Murphy hit the front page of *The Cleveland Press Sports Extra*. *The Press* was honoring Murphy's thirty years with the Cleveland Browns.

A trainer since his days at Notre Dame where, after participating in basketball and baseball, he gravitated to the training room and began informally helping out Hughie Burns, the man in charge. Murphy's first job was with the Chicago Rockets. However, three weeks before the '49 training camp, the job fell through and he moved east to work with the New York Yankees football club, assisting also with the baseball Yankees. At that time the ACC (All-America Conference) folded with Cleveland being incorporated by the NFL. Murphy then moved to the Browns and has been with the team ever since.

Our congratulations to someone who has served with sincere dedication to his profession for over thirty years.

Naseby Rhinehart

Naseby Rhinehart went to the University of Montana in 1931 from Milwaukee, Wisconsin. It was then he started on a career which now has him known as the "Father of Athletic Training" throughout the Northwest.

Rhinehart went to Montana as a student where he participated in football and basketball and is still known as one of the University's best all-time athletes. His senior year he was awarded the Grizzly Cup which is given to the senior athlete who exhibits outstanding loyalty, scholarship and service as well as athletic achievement. Rhinehart was also named as a member of the *Sports Illustrated* Silver Anniversary Football Team in 1960. This team honored men who have distinguished themselves in public life since their days as athletes.

Rhinehart has served as an athletic trainer for the 1979 Pan American Games and is a member of the Helms Athletic Foundation Hall of Fame.

In 1979 the Naseby Rhinehart Scholarship was first awarded and is given annually to a junior or senior in District Ten.

Wayne "Doc" Rideout

Wayne "Doc" Rideout, who began working as track coach and athletic trainer at the high school in Bryan, Texas in 1952, retired from the public schools this past spring, 1980. An outstanding trackster himself, "Doc" set an Illinois state 880 yard dash record in 1933 while in high school. His collegiate career began in '36 when "Doc" out ran World Champion Don Lash in the two mile run at the Sugar Bowl Meet. And, in 1938, he set a World Record at the Princeton University Invitational Track Meet by running 1,320 yards in 3:00.3, becoming the first Texas trackster to set a world record.

In 1974, "Doc" Rideout was inducted into the National Athletic Trainers Association's Hall of Fame and in 1978 and 1980 was named the Nutrament National High School Trainer of the Year.

After retiring from the public schools, "Doc" was sought after and is now employed by Allen Academy in Bryan, Texas where he is responsible for all their athletic teams.

Jimmy Cantu and Tom Falen

Last spring Pan America University and Central Michigan University were playing a baseball game in Edinburg, Texas. Responding quickly to a cry for assistance from the stands, PAU's trainer, Jimmy Cantu and CMU's trainer, Tom Falen rushed into action administering cardio-pulmonary resuscitation (CPR) to a fan who had suffered a cardiac arrest. Mr. Harold Lange was taken by ambulance to Edinburg General Hospital. Mr. Lange and his wife are presently back in their South Dakota home.

Tom Falen just recently graduated from Central Michigan after doing his student teaching and working as athletic trainer at a high school in Mt. Morris, Michigan.

Jim Cantu is presently a senior at Pan America U. working mainly with baseball. He spent last summer with the Astros Minor League team in Florida and plans to graduate this spring.

This impressive group is far from complete. There are many more athletic trainers who make strong contributions to the sports medicine profession, their educational or private communities. Anyone wishing to share contributions made by our membership please send complete information to: Chris Neuman, Assistant Athletic Trainer, Ahearn Fieldhouse, Kansas State University, Manhattan, Kansas 66506.

CORRECTION

The name of the winner of the William F.X. Linskey Award as reported in the Fall 1980 issue should be Barbara Ellen Stokes.

LIAISONS AND INTERNATIONAL AFFILIATES

Communication, or the giving and receiving of information, is the key concept in any organization, relationship or co-working situation. Every June the membership of the National Athletic Trainers Association gathers in one of the major United States' cities to "communicate", share new ideas, re-evaluate old ones, meet new people, renew old acquaintances. Although this national gathering only occurs annually, there are frequent mini-meetings throughout the year, district meetings, workshops, seminars, etc. And, the NATA itself maintains continuous open communication lines with various organizations and individuals as a means of constant awareness and updating of related happenings in the field of Sports Medicine, nationally and internationally. This practice serves to make our organization more knowledgeable and cohesive. The following are partial lists of NATA Liaisons and International Affiliate Members.

Liaison Representatives

American Academy of Pediatrics
Richard F. Malacrea, Princeton University, Princeton, New Jersey.

American Alliance for Health, Physical Education and Recreation (No Representative at this time)

American College of Sports Medicine
Ken Knight, Indiana State University, Terre Haute, Indiana.

American Corrective Therapy Association
Jeffery D. Fair, Oklahoma State University, Stillwater, Oklahoma.

American Physical Therapy Association
Don Chu, California State University at Hayward, Hayward, California.

Joint Commission on Competitive Safeguards and Medical Aspects of Sports
Roy Don Wilson, Southwest Louisiana State, Lafayette, Louisiana.

National Association for Girls and Women in Sports
Earlene Durrant, Brigham Young University, Provo, Utah.

National Association of Intercollegiate Athletics
Alfred Ortolani, Pittsburg State University, Pittsburg, Kansas.

NCAA Football Rules Committee
Warren Morris, University of Georgia, Athens, Georgia.

National Operating Committee on Standards for Athletic Equipment (NOCSAE)
Robert C. White, Wayne State University, Detroit, Michigan.

National Athletic Injury/Illness Reporting System
John W. Powell, Coordinator, The Pennsylvania State University, University Park, Pa.

National Head and Neck Injury Registry
Dr. Joseph Torg, University of Pennsylvania Sports Medicine Center, Philadelphia, Pa.

INTERNATIONAL AFFILIATE MEMBERS

International Affiliate members are individuals working in the field of Sports Medicine in other countries who are not certified by the NATA. These professionals pay dues to the NATA in order to receive our journal, *Athletic Training* and achieve International Affiliate Membership status.

Emile Kunz
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Quebec, Canada
Kenneth Carson
Ontario, Canada

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Diabetes and Exercise. Here the authors suggest using the Scandinavian model of volunteer exercise leaders at all levels of community work, school and play.

In the appendix are drawings of the exercises they recommend for conditioning an athlete. For a student in athletic training this book is a simplistic review, and average ATC's would find it far too elementary for their needs.

Elizabeth Stevenson

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Answer to Flashback in NATA History quiz: Otho Davis.

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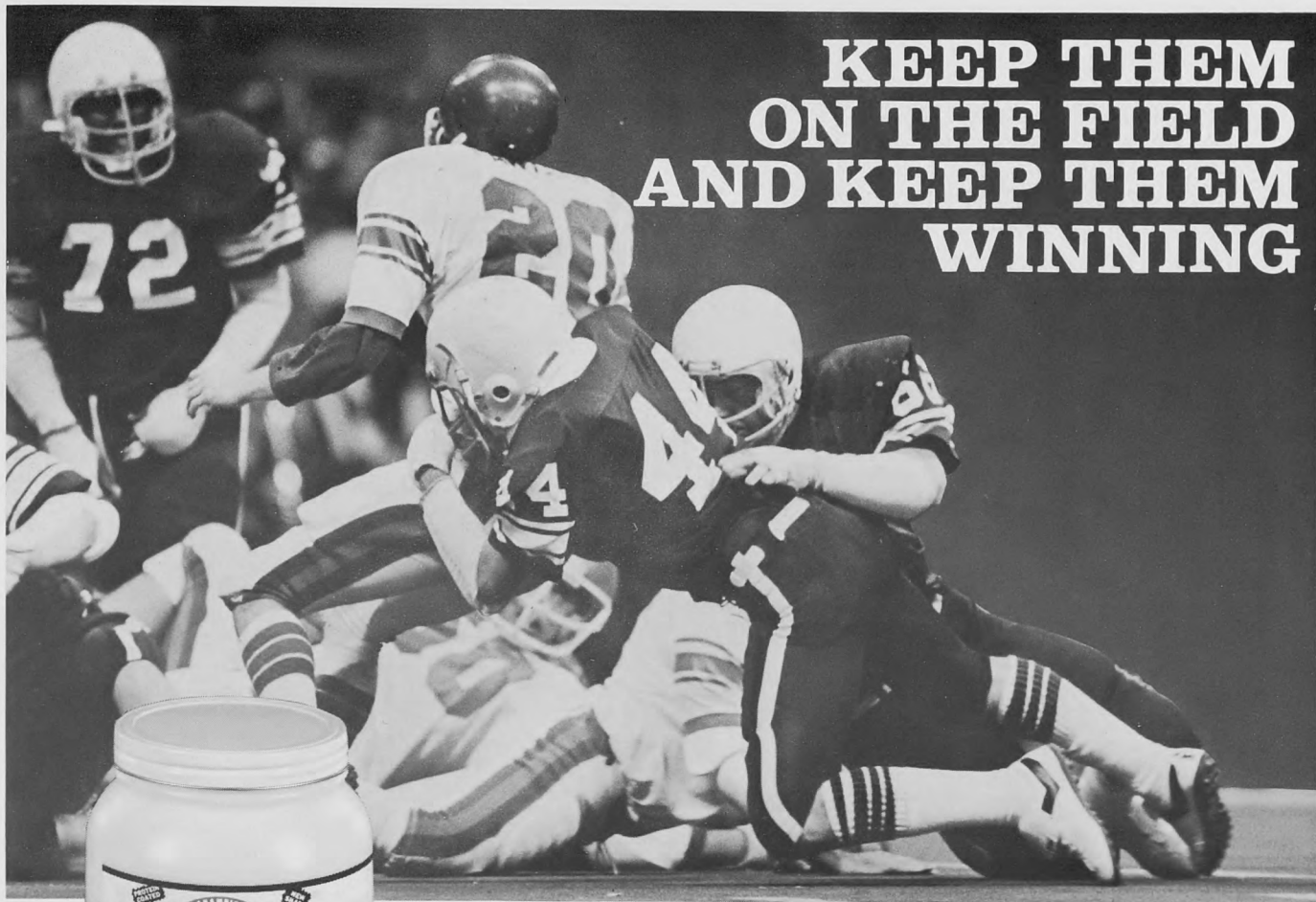
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