ATHLETIC TRAINING

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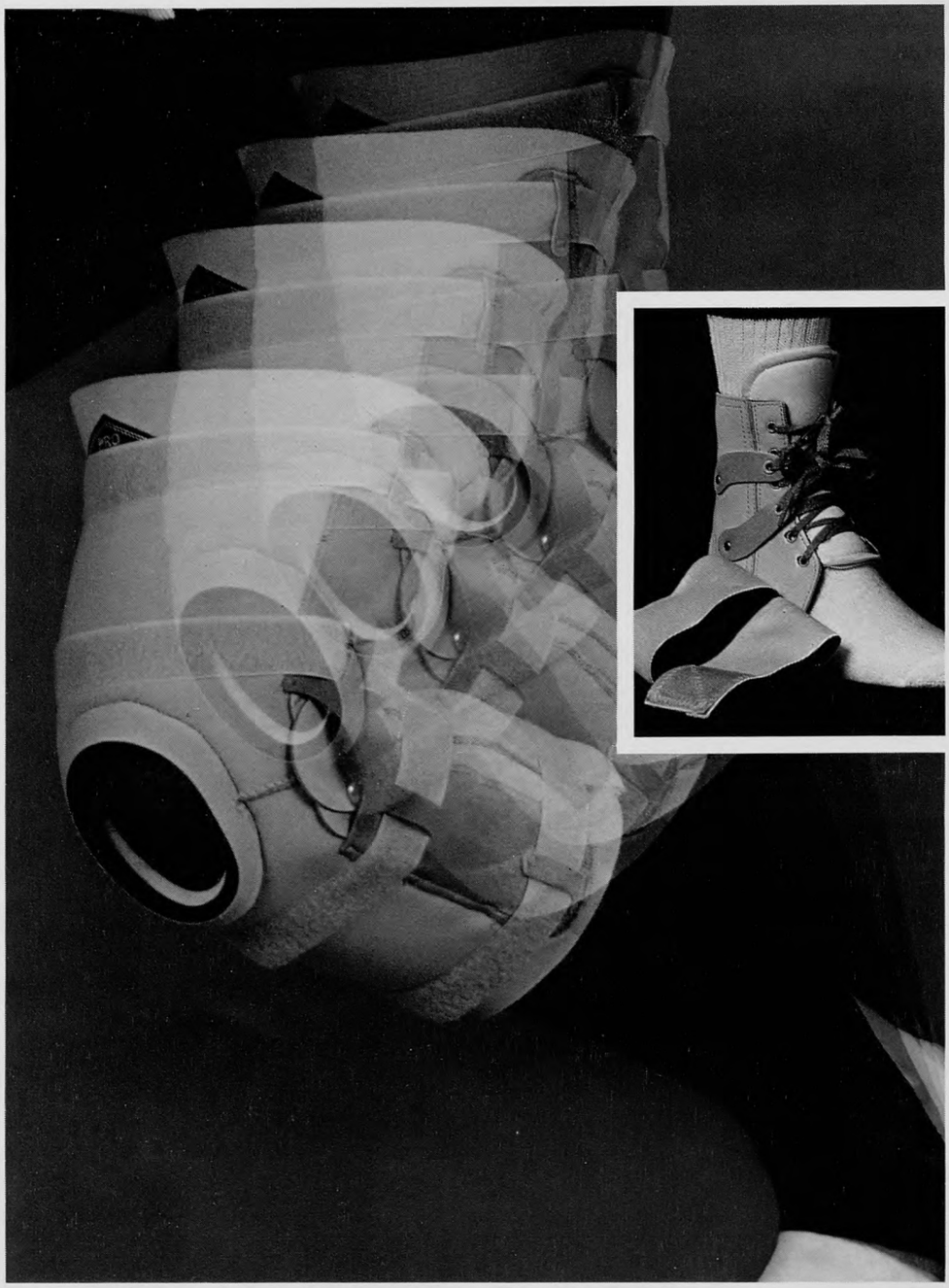
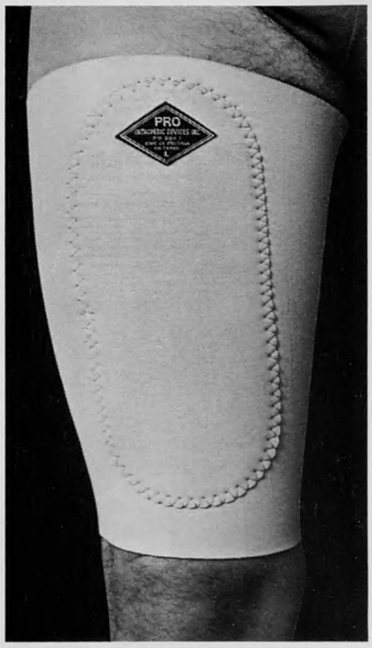
IN THIS ISSUE:

- NEW SECTION - The Student Trainer Corner
- Trainer Malpractice - A Sleeping Giant
- Designing Athletic Training Facilities
- Constitution of the NATA





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ATHLETIC TRAINING

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Volume 19, Number 1, Spring 1984

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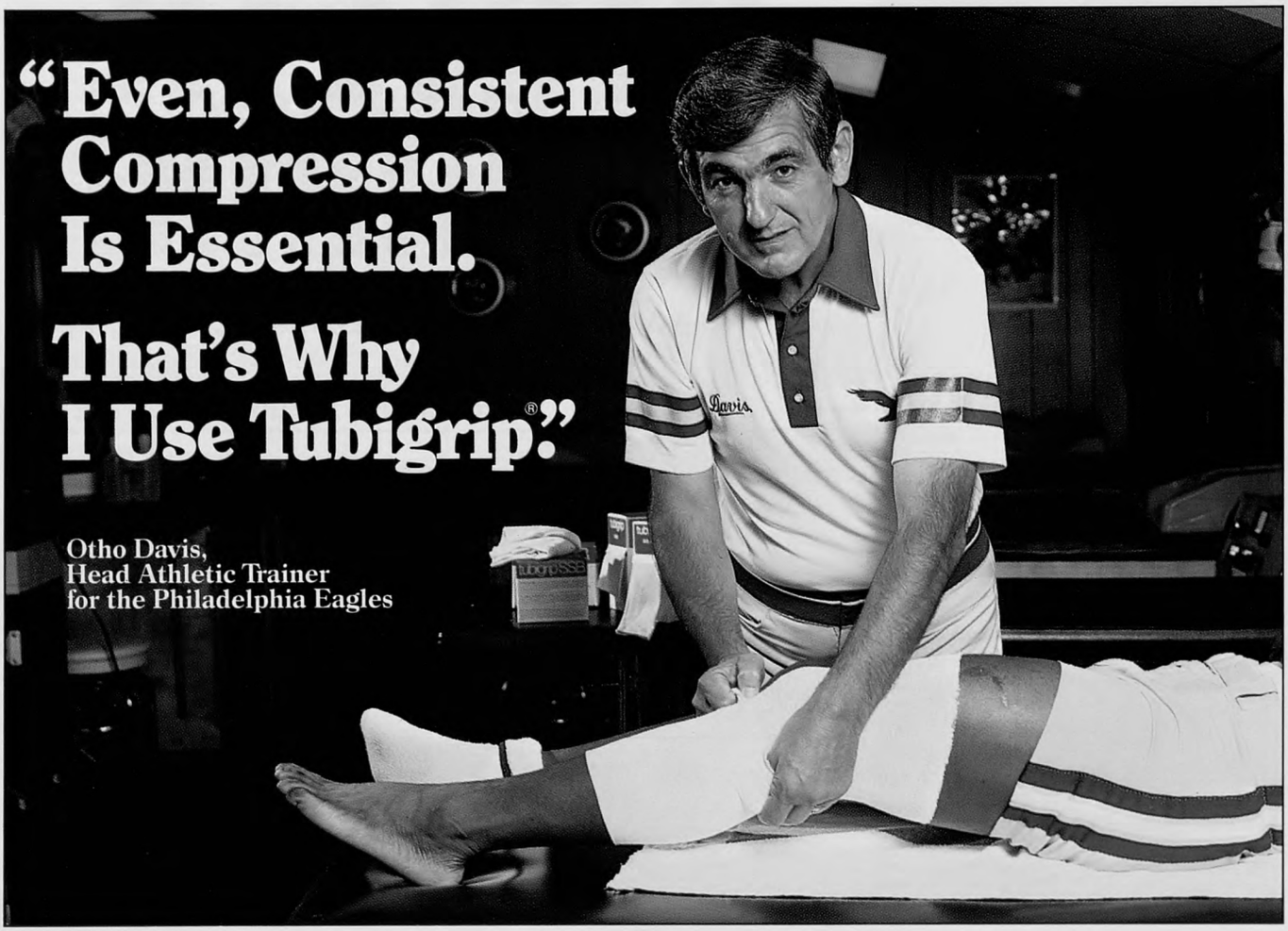
Features

Departments

In this Issue



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President's Message

Dear NATA Members:

It is a great honor to be re-elected President of our Association. The large participation in the recent election is an indication of our members' levels of professionalism. Although the officers sometimes get a disproportionate amount of the attention, I assure you the present officers are well aware of our growth being a total team effort achieved only through the efforts of every member.

The Trainer of the Year Awards were made on February 6, 1984, in Cincinnati, Ohio. I would like to thank the Drackett Company for their continuous support of this project.

The Board of Directors hosted the fourth "Who Speaks for Sports Medicine" liaison committee meeting on February 14 in San Antonio, Texas. It was a productive meeting and an opportunity for our Board to become aware of the goals of this committee.

The Nashville Convention appears to be an ideal opportunity to combine business with pleasure for you and your family. I hope you are making plans to attend.

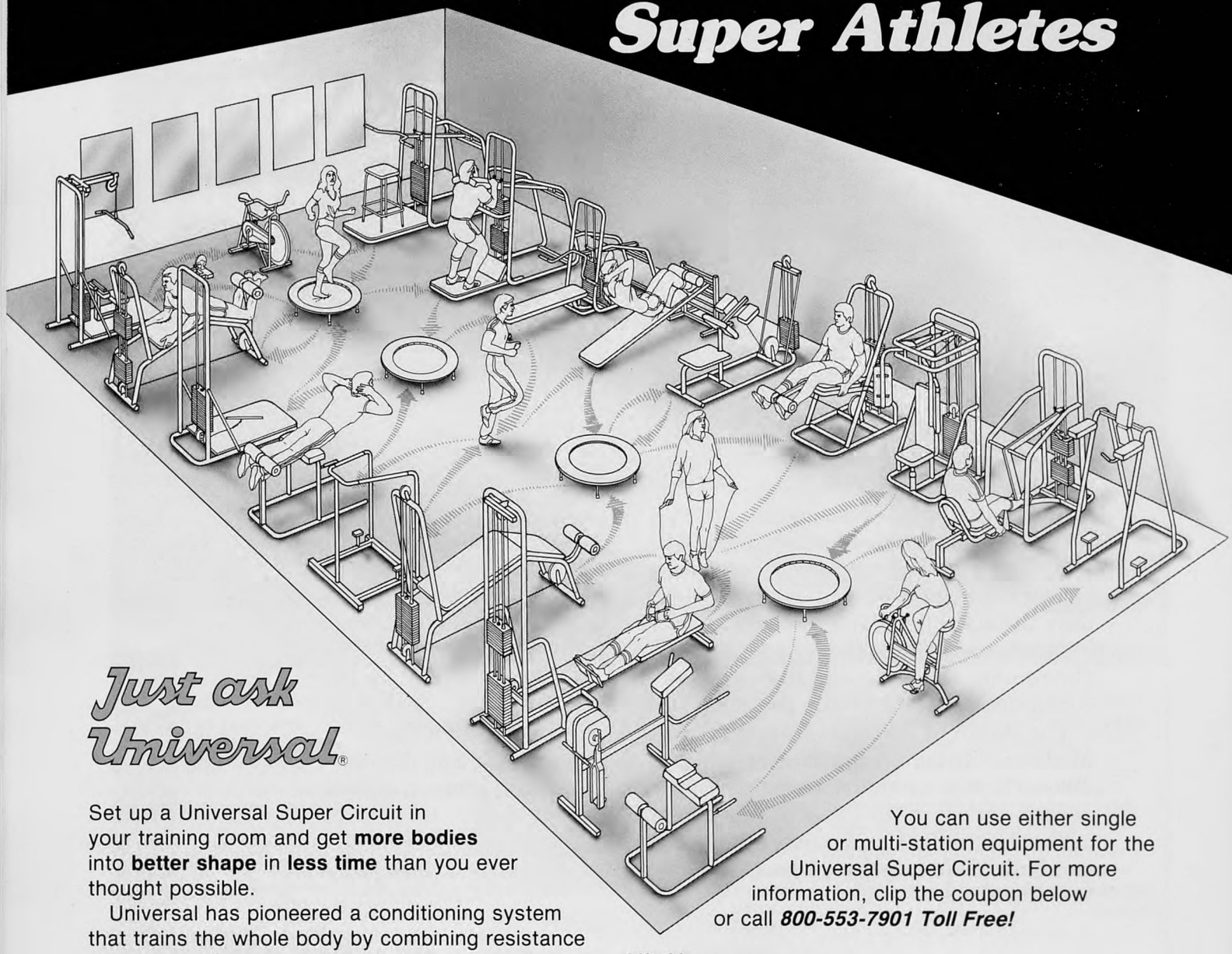
Thank you very much for your renewed support.

Sincerely,

Bobby

Bobby Barton, ATC

New Super Circuit Builds Super Athletes



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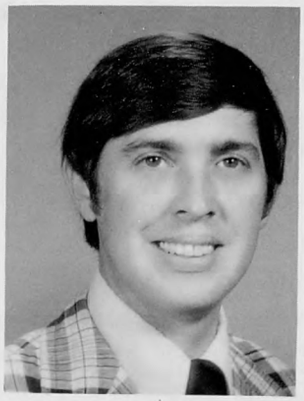


Steve Yates, ATC, M.Ed
Wake Forest University

I would like to wish each of you a happy and healthy new year. I hope the weather in your area is starting to break and Spring is just around the corner!

New Subscription for Athletic Trainers

Mr. Ward Newschwander, manager of the medical education marketing division of Ciba-Geigy Corporation, has alerted me that **CLINICAL SYMPOSIA** will be offered for subscription in early 1984. For further information contact:

CIBA Medical Education Division
14 Henderson Drive
West Caldwell, New Jersey 07006

Update

The Executive Committees of the National Association for Girls and Women is Sport and the National Association for Sport and Physical Education unanimously approved "the formation of a single athletic training council." The NAGWS/NASPE Joint Executive Committees on October 18, 1983, approved the Operating Code of the Joint NAGWS/NASPE National Council of Athletic Training (NCAT). The first chair of NCAT is Antoinette VanDePutte.

New Feature for the Journal

The "STUDENT TRAINER CORNER" for the Journal is a reality. See page 15 in this issue. I urge all student members to contribute to "your" section through Deloss Brubaker.

Future Convention Sites

For your long-range plans, you may be interested in these projected Future NATA Convention Sites:

1984	Nashville, Tennessee
1985	San Antonio, Texas
1986	Las Vegas, Nevada
1987	Columbus, Ohio
1988	Washington, D.C.
1989	Fort Worth, Texas
1990	New Orleans, Louisiana

Handbook on Poisonings

The second edition of *Handbook of Common Poisonings in Children* is now available. This publication might be useful in training rooms for those who teach first aid classes or work summer sport camps. To order the handbook, which costs $15.00, call 800/323-0797 or write: AAP Publications Department, Box 1034, Evanston, IL 60204.

Response

Many athletic trainers have written to me with new ideas and suggestions about how to make the Journal a better publication. Some of these ideas have been used and others are under consideration. I would like to thank those who have taken the time to write and solicit further response for new ideas and contributions for publication.

SY(SSSA)+

Editorial

Perils of Carbon Monoxide Poisoning not always obvious . . .

EVANSTON, IL — Carbon monoxide, that colorless, odorless by-product of combustion technology, is more of a health threat to children than most think. Its poisonous subtleties can cause death or permanent problems such as personality changes, convulsive disorders and memory disturbances, according to Dr. Regine Aronow. She says the dramatic increase in sickness and death stemming from this health threat is due to carelessness and economic hard times.

"Most people don't guard against carbon monoxide poisoning and that's because they don't consider it a problem," said Dr. Aronow.

According to Dr. Aronow, during the recent economic crunch many households have foregone repairs to furnaces and automobiles. Chimney flues and the furnace itself, which should be inspected annually, are left unchecked. With more concern about saving heating dollars with unvented space heaters, people often sleep in insulated homes with unopened windows.

These fume-producing sources can emit dangerous levels of carbon monoxide for weeks before the problem is noticed. "You only need a few day's worth of exposure for health ailments to begin," she says.

Because their brain tissue is still developing, children are keenly sensitive to carbon monoxide and easily affected, says Dr. Aronow. Initial problems children may develop include gastro-intestinal problems, lack of pep, chronic headaches and a change in personality. "What makes this so hard to diagnose is that many parents and doctors assume these maladies are caused by a 'flu bug at school,' " Dr. Aronow points out.

If left unchecked, these problems can become permanent and the poisoned child can incur an array of neurological deficits, including slower learning.

To prevent carbon monoxide poisoning, Dr. Aronow suggests space heaters always be vented and that a fresh air source replenish depleted oxygen. Fuel-fired unvented heaters should never be used in recreational vehicles, tents or trailers. Charcoal, another heavy carbon monoxide producer, must never be used indoors.

Other prevention measures include:

+ each time a car's oil is changed, the exhaust system should also be checked to ensure it is working properly.

+ whenever a car's heater is running, a window should

continued on page 46

A Commentary on the National Scope of Drug Problems

Ronald W. Buzzeo
Edited by: Don Kaverman, ATC

The Reagan administration is putting every available resource into the destruction of a thriving domestic business whose yearly sales are roughly equivalent to the combined annual profits of America's 500 largest corporations. This is a highly organized business, whose operations are both domestic and international in scope, and it trades in a commodity for which there is a seemingly incessant demand. From 1977 to 1980, it showed an increase in profits of approximately 50 percent, and its current annual sales are somewhere in the neighborhood of $75 billion.

This business is the illicit drug trade - an enterprise that the United States government is striving to eliminate. Typical of its trade are the 48 tons of cocaine, 4.3 tons of heroin, and 15,000 tons of marijuana - currently the country's second largest import, after oil at the so-called "street value" price. Add to that the billions of dosage units of depressants and stimulants that are diverted or manufactured illegally each year and the magnitude of the problem this country is experiencing becomes clear. In response to this, the White House has staged a five-part strategy designed to attack drug abuse:

1. At the international level, stop the growth and shipment of drugs from foreign countries;
2. Enlist Navy and Air Force ships, radars and aircraft and increase cooperation between Federal agencies;
3. Push Federal - and state - level legislation to enforce the arrest of traffickers, increase mandatory jail sentences, and improve bail procedures;
4. Strengthen and broadcast the results of scientific-medical research and development programs into drug effects;
5. Provide widespread education to parents on drugs and their effects.

Mr. Buzzeo is Deputy Director of the Office of Diversion Control, Drug Enforcement Administration, Washington, DC 20537.

A few of the new initiatives that the Federal Government has taken to curtail drug trafficking and the current trends in the abuse of legitimately manufactured controlled substances will be reviewed. The perpetrators of drug trafficking have become increasingly organized and sophisticated, and the need for a multi-faceted approach to immobilize these violators is evident.

By the 1980's south Florida had become a focal point of violence and corruption because of its transformation into the central conduit for the importation of illegal drugs into this country. Therefore, personnel from the Departments of Justice, Treasury, Transportation and Defense were brought together, under the leadership of Vice President Bush, for the first time to form a task force designed to launch a coordinated attack on drug trafficking in south Florida. Since then, Federal agents have made more than 1,200 arrests, seized 114 seagoing vessels, 68 aircraft, $1.3 billion in currency, $122,000 worth of firearms, $7.9 million in assets and intercepted more than 500 tons of illicit drugs before they entered the U.S. market.

Because of this success, additional task forces were established throughout the United States in Boston, New York, Baltimore, Detroit, Atlanta, Chicago, St. Louis, Houston, Denver, San Francisco, Los Angeles, and San Diego. There are approximately 1,200 enforcement agents assigned to the task forces from a variety of agencies including DEA, FBI, US Customs Service, IRS, and the Border Patrol. This affords the opportunity to utilize each agency's expertise. In addition, the FBI has been brought into the fight against the Nation's number one crime problem. The country has gained not only the resouces of the FBI, but its many years of experience in fighting organized crime. In the last year, the FBI has initiated more than 1,200 investigations, including 300 joint investigations with DEA. During 1982, Federal cocaine seizures were nearly three times the amount seized in 1981. Heroin seizures almost doubled and seizures of marijuana increased by more than 45 percent.

New strategies continue to be developed. On March 23, 1983, President Reagan announced the formation of the National Narcotics Border Interdiction System (NNBIS) to interdict the flow of controlled substances into the United States. The Executive Board will be headed by Vice President Bush and will include the Secretaries of State, Treasury, Defense and Transportation, the Attorney General, the Counsel to the President, the Director of the CIA, and the Director of the White House Drug Abuse Policy Office.

The interdiction system is designed to coordinate the work of those Federal agencies having existing responsibilities and capabilities for the interdiction of seaborne,

airborne and cross-border importation of narcotics.

The illicit drug trade is by no means limited to heroin, cocaine and marijuana. In 1982 Federal agents seized over 200 clandestine laboratories engaged in the illicit manufacture of a variety of drugs, including LSD, methamphetamine, and PCP. The diversion of legitimately produced pharmaceuticals from international commerce presents another serious problem. An example was the diversion of the potent sedative/hypnotic drug methaqualone (commonly known by the trade name Quaalude) which was responsible for one of the largest drug abuse phenomena ever known in the United States. This drug was responsible for as many emergency room admissions as heroin. It was estimated that approximately 85 percent of the methaqualone available in the illicit traffic had been legally produced outside the United States. As a result of DEA's diplomatic, regulatory and enforcement efforts with a dozen foreign countries, over 68 tons of methaqualone powder destined for the United States were seized during 1981 and 1982. In addition, several countries - including the People's Republic of China, Hungary, Austria and West Germany - which were engaged in the production and exportation of methaqualone powder have either curtailed or ceased production or have placed more stringent controls on the exportation of this drug.

Some of these drugs, such as Diluadid, have been popular for years and command prices as high as $60-$70 a dosage unit. Other drugs that are being abused virtually nationwide are Preludin (Phenmetrazine), an amphetamine-like stimulant; Talwin (Pentazocine), a potent analgesic which is frequently injected with the antihistamine PBZ (tripelennamine) - a combination known in the illicit traffic as "T's and Blues"; codeine compounds and cough syrups with codeine taken either alone or in combination with glutethemide (Doriden); cough suppressants containing hydrocodone (Tussionex); oxycodone (analgesic); Valium (diazepam); and, of course, cocaine - whether licit or illicit in origin. In addition, some abuse of two drugs which have analgesic effects equivalent to morphine is being encountered. These two drugs are butorphanol and nalbuphine (marketed under the trade names Stadol and Nubain) and abuse currently appears to be limited to health care professionals.

It is clear that a large poly-drug abusing population has developed and will continue to have a preference for multiple drug use. Another factor contributing to the demand for and the price of diverted drugs is the fact that heroin availability in many parts of the United States has been reduced considerably from the levels seen in the early 1970s. Therefore, there is a demand for a wide variety of legitimately produced drugs to supplement poor quality or nonexistent heroin. In some cases, legally produced narcotics have replaced heroin as the drug of choice.

Consider, for example, the phenomenon of "New Jersey sets," "loads" or "fours and dors." Drug abusers discovered that for about $10 they could combine two to three times the therapeutic dose of codeine compound tablets and the sedative hypnotic drug glutethemide (Doriden) to achieve a high similar to that of a $50 "hit" of heroin. The average abuser commonly uses "loads" or "fours and dors" six or seven times a day.

During 1981-82, the "load" problem escalated rapidly and spread to other major metropolitan areas throughout the United States. DEA has identified traffickers who specialize in "loads" in Los Angeles, Chicago, New York, Baltimore, and Miami. In New York over one million dosage units of controlled drugs, primarily codeine compound tablets and Doriden, were diverted through three pharmacies owned and operated by a foreign national. In November 1982, this individual was sentenced to serve 15 years in prison, 20 years on probation, and was ordered to pay a fine of $120,000. The court subsequently ordered the individual be deported upon completion of the jail term.

As mentioned earlier, drug abusers are now also using codeine cough syrup with Doriden. In many states these cough syrups can be purchased "over the counter" without a prescription. The diversion of over 1,000 gallons of codeine cough syrup and 200,000 tablets from just one pharmacy has already been documented.

Most of the diversion of legitimately produced drugs occurs at the "practitioner level." This is a generic term which refers to physicians, dentists, pharmacists, and other health care professionals. It may occur through unlawful sale of the drug itself or it may be accomplished by a physician writing prescriptions for which there is no valid medical purpose. There is a small percentage of pharmacists who, although knowing the prescriptions are fraudulent, will nevertheless fill them.

During Fiscal Year 1982, DEA initiated over 300 investigations of willful diversion by practitioners. This number, however, represents less than five percent of the total number of practitioners who are believed to have diverted drugs. In response to this, DEA developed a targeting system designed to ensure that high-level practitioner violators are investigated and prosecuted at the Federal level.

A physician in Texas who prescribed over 300,000 tablets of Preludin in a seven-month period was recently convicted. During those seven months, this one physician was responsible for 46 percent of all of the Preludin dispensed in the State of Texas. In Ohio, a physician who diverted four million dosage units of controlled drugs was convicted on charges of illegal drug sale and assault. DEA investigators seized $146,000 in cash - reportedly one week's profit - from his office prior to his arrest. In Los Angeles, the DEA filed charges against a pharmacy which the Superior Court characterized as a "recreational drugstore" for illegally filling controlled drug prescriptions.

The DEA has found that violative practitioners are becoming increasingly sophisticated and a growing number are becoming involved in far-reaching illicit operations that are financed directly by criminals who have no medical background.

An example of the complex type of operation the DEA is encountering is the group of storefront clinics that were operating in the Detroit area. These clinics employed physicians whose duties were limited to writing fraudulent prescriptions for Preludin, Desoxyn, Dilaudid, and Talwin - all highly abused drugs. As many as 40 to 60 prescriptions could be issued to a single individual upon request. This operation was directed by an individual who was the head of an interstate ring that transported the diverted drugs to the District of Columbia, North Carolina, and Louisiana for illegal sale. A joint DEA/FBI investigation into the activities of this group has resulted in 25 arrests to date. There have already been 21 convictions, the forfeiture of $100,000, and the imposition of $210,000 in fines. The DEA estimates this operation netted $5 million and diverted over six and a half million dosage units of controlled drugs during a 27-month period.

A similar type of operation that has been encountered is the "stress clinic." These clinics were the major source of domestic diversion of methaqualone (Quaalude) and stretched from New York to Boston, Atlanta, Miami, Chicago, and Los Angeles.

The stress clinics, which operated under the guise of

legitimacy, were really nothing more than prescription mills for methaqualone. Like the storefront clinics in Detroit, they typically were set up as independent corporations by nonmedical financiers who worked in collusion with physicians and pharmacists. One pharmacy in New York was owned by financiers who also owned and operated local stress clinics. All of the clinics' clients were directed to have their prescriptions filled at the pharmacy. This pharmacy was responsible for dispensing more methaqualone tablets than any other pharmacy in the State of New York.

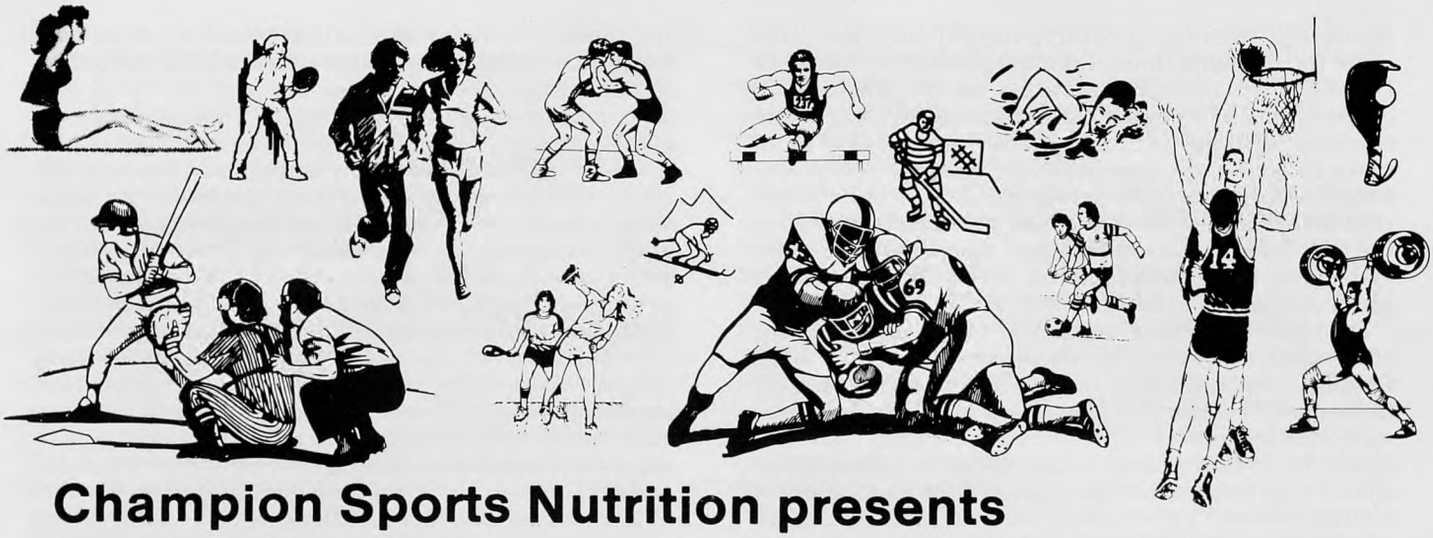
DEA has been very successful in immobilizing the stress clinics and the individuals associated with them. During a two and a half year period, 45 defendants (27 financiers/operators, 13 physicians and 5 pharmacists) were indicted and/or convicted and 32 clinics were shut down. In addition, three of the states in which stress clinics were located have now banned the medical use of methaqualone. These two factors, along with regulatory action taken by DEA to reduce the domestic production of methaqualone from 7,900 kilograms to 2,200 kilograms, have contributed to a significant reduction in the availability of legitimately manufactured methaqualone. In New York, the street price of methaqualone has increased from $3 to $25 per dosage unit and prescriptions have decreased by 75 percent.

The magnitude and complexity of the drug epidemic rampant throughout the United States is well documented. The effects of drug abuse are being felt by virtually everyone, for drugs victimize not only the addicts but the innocent citizens.

The Federal Government is deeply committed to eliminating drug trafficking and abuse. The DEA is confident that, with increased interagency cooperation and the innovative programs that have been developed and implemented, enforcement efforts will be successful. Nevertheless, experience over the past decade proves that, regardless of the amount of Federal resources available, the heart of the problem still lies in the community. The age-old law of supply and demand will not be set aside easily. As long as the demand for illicit drugs remains in the marketplace and the potential for profit is so great, the drug dealer will find some way to get his product to the customer. Drug abuse is prevalent in every economic, social and age group in this country. The success of the national effort ultimately depends, to a large extent, on the dedication and commitment of people - especially in the areas of education and prevention. An athletic trainer is provided with the opportunity and the obligation not only to take care of the athlete's physical needs, but to serve as a counselor and a teacher. Athletic trainers should take the offensive in drug abuse education. Athletes should be provided with accurate and credible information on drugs and drug abuse.

To quote President Reagan: "Drugs already reach deeply into our social structure, so we must mobilize all our forces to stop the flow. . .to let kids know the truth, to erase the false glamour that surrounds drugs, to brand drugs such as marijuana exactly for what they are - dangerous. . . . We can put drug abuse on the run through stronger law enforcement; through cooperation with other nations to stop the trafficking; and by calling on the tremendous resources of parents, teachers, civic and religious leaders, and State and local government officials."

It is time for everyone to get involved. +



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Student Trainer Corner

"From the student, for the student, about the student"

Deloss A. Brubaker, MS, ATC
Oregon State University

The Lock Haven University Athletic Training Club

by

Tammie Dreese

Our success as a club here at Lock Haven University stems from a good reputation and great advisors who really care. Our advisors are Mr. Dave Tomasi and Ms. Beth Sloane. The club to this date is 120 members strong. The doors are open to all students on campus regardless of their major. We have mandatory club meetings every other week. Dues for the club are $2.00 for new members and $1.00 for previous members. At these meetings we discuss training room schedules and duties, fund raising, team assignments, upcoming sporting events, and other pertinent information.

Training room assignments are given in regard to the individual's class schedule. Freshmen and sophomores are given five hours per week, with the sophomores on a rotational schedule between athletic teams. The juniors and seniors are assigned three hours per week in the training room plus responsibilities with particular teams. An individual is allowed to participate in one extracurricular activity per year and still maintain athletic trainer eligibility.

The fund raising consists of numerous soft pretzel sales throughout the year. The money that is raised goes to scholarship funds, senior jackets, bandage, scissors, penlights for each club member, the end of the year picnic, and various other needs as they arise.

We try to have some variety to our meetings throughout the year. Occasionally we have taping clinics, physicians' talks on sports medicine and other individuals involved in the sports medicine field.

Each year we order, as a club, Lock Haven Athletic Training Staff jackets, shirts and sweaters for the club members to purchase. We try to order by quantity in order to keep the prices to a minimum. Also, each year, for example, our class ordered a lined pullover with hood. Each senior has his name put on it along with LHU Training Staff.

Every year we try to get involved in social activities within the club. Most of the upper classmen try to get to the Eastern Athletic Trainers Association convention each January held at Grossinger's Convention Center in the Catskills. At the end of the year we plan and organize a cookout for the entire training club. We use the remaining funds raised throughout the year to buy the food and drink. It is quite a festivity in itself.

The athletic training program here at Lock Haven University is very competitive. There are only twelve people accepted into the program each year. To be eligible for this procedure you must have a 2.5 grade point average, be acquiring hours in the training room, take a written test, a practical test, have two references filled out on your behalf, and appear before a selection committee. All of this is compiled and selections are made by Mr. Tomasi, Ms. Sloane and the committee based on this criteria. once a student is accepted into the program, he or she must continually make progress toward becoming a better athletic trainer.

There is great pride and cohesiveness between our athletic training staff. We have excellent leadership, and that is what carries over to the student trainers. We are conditioned "to do" rather than to watch. If a problem arises, then we ask for help from Mr. Tomasi or Ms. Sloan. This premise in itself makes the "hands on" experiences worthwhile.

Editor's Note: *The following quidelines must be met for submission of papers or material to the* "Student Trainer Corner." *These are essentially the same rules governing the* "Student Writing Contest."

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

If you wish to submit a manuscript or an item for the student Trainer Corner, please send to: Deloss Brubaker, 103 Gill Coliseum, Oregon State University, Corvallis, OR 97331. +

"THE LOCK HAVEN UNIVERSITY ATHLETIC TRAINING CLUB"

The Development of an Interphase Connector to Isokinetically Evaluate Rotary Cervical Spine Musculature Using the Cybex II Dynamometer

Burton L. Rogers, Jr., ATC

Recently it has been reported that isokinetic testing using the Cybex II Dynamometer® has been effectively implemented to measure full range of motion torque output at a specific speed (7,13,17,18). In addition to measuring torque, the Cybex II can also be used as a component in rehabilitation protocols and preseason screening. Gilliam (5), as a portion of a preseason exam, used the Cybex II to determine isokinetic torque levels for the quadricep and hamstring muscle groups in high school football players. He concluded that torque levels will vary based on such variables as age, somatotype, weight and position.

The torque ratio of hamstring to quadricep musculature can vary from 50 to 67%. Coplin (4) and Laird (10) reflect on the importance of high ipsilateral hamstring/quadricep ratios as well as proper contralateral ratios (i.e. right to left quadriceps) by indicating that improper proportions may be conducive to joint injury. The Cybex II has a wide range of application for assessing torque ouput through a range of motion. However, the Cybex II Handbook for Isolated Joint Testing and Exercise does not have a protocol for the cervical spine (9).

Studies involving neck musculature are few in number and limited in scope. The cervical spine musculature has been evaluated statically (2), isotonically (15) and electrically with bipolar electrodes (19).

There are protocols to determine neck musculature strength isometrically (3) and to hypertrophy them isotonically (16). However, computer searches did not produce isokinetic regimens for the cervical spine. Therefore, so that the Cybex can be used as a screening and/or strength training modality, efforts were undertaken to couple the cervical spine to the Cybex II.

Hopefully, strength ratios for cervical spine antagonistic musculature may be determined in an effort to minimize myofascial and catastrophic cervical spine injuries.

Current work suggests that regimens to hypertrophy neck musculature should be implemented as partial prophylaxis to cervical injury (1,11,14).

Methodology

Fifty-four E.L. Bowsher High School football players were selected as the population. Previous studies have demonstrated the Cybex to be reliable (5), however, this reliability was not determined to evaluate cervical spine strength. Therefore, each athlete was pretested on two separate occasions producing a reliability coefficient of .88 (12). (See Table I)

The authors felt that in order to use this isokinetic device to evaluate neck strength two problems had to be overcome: 1) a universal appliance had to fit over the head and 2) an interphase connector between the appliance and the Cybex input shaft had to be constructed.

Selection of the head appliance

The authors selected two Southern Bike football helmets. They were selected for three reasons: 1) The helmets are lined with two inflatable intertubes that can be adjusted to provide a very tight fit. The tight fit is essential when determining range of motion. Double thickness cheek pads (1") were utilized to assure that the helmet and head traveled the same number of degrees. 2) With the inflatable intertubes, two helmets fit the entire population. 3) The Southern Bike helmet is equipped with a four-point chin strap that further limits movement of the head inside the helmet.

Table 1 - Test - Retest Reliability.

Table I

$$r = \frac{(X-X)\ (Y-Y)}{NS\ S_x\ S_y}$$

$$r = \frac{1180}{54(4.79)\ (5.16)}$$

$$r = \frac{1180}{1334}$$

$$r = .8845$$

*Essec Keuffel Co., Morristown, New Jersey

Interphase connector

An interphase connector between the helmet and the Cybex machine was developed. These authors fabricated the connector from ten-gauge mild steel. (Figs. 1,2) The

Mr. Rogers is the Head Athletic Trainer at E.L. Bowsher High School, Toledo, Ohio.

connector fit over the pronator, supinator attachment (with the perpendicular bar, as opposed to the newer 10 degree offset).

The athletes were coupled to the Cybex in the following manner. Initially, it must be recalled that: 1) The center of the input shaft must pass an imaginary line though the axis rotation of the articulation and 2) Fifty percent of cervical rotation occurs between C_1 and C_2 with the remaining 50% spread between the remaining cervical vertebrae (8). Therefore, the line for the axis of rotation was determined by 1) palpating for the large transverse process of C_1 (midway between the tip of the mastoid process and angle of the jaw caudal to the external auditory meatus) and 2) since C_1 only has a posterior tubercle, we visually lined up the spinous process of C_2-C_7 with the input shaft.

The athletes were originally tested on their sides while being manually stabilized by fellow athletes. (Figs. 3,4) Further experimentation suggests an alternative arrangement may be entertained with the athletes prone and secured by padded belts at the inferior scapular border and lumbar spine. (Fig. 5) Perhaps this will provide us with even higher reliability coefficients.

Selection of input shaft and paper speed

Since we were working with a very short axis of rotation and safety precautions dictated a slow ballistic movement, 30°/sec. was selected and the paper speed set at 5mm/sec.

The subjects were given three practice trials to become familiar with the equipment and their range of motion. The athletes were tested three times for right and left rotation at 30 second intervals. This half-minute interval allowed time to reset the machine.

Figure 1 - The 10-gauge mild steel interphase connector used to couple the head to the Cybex II.

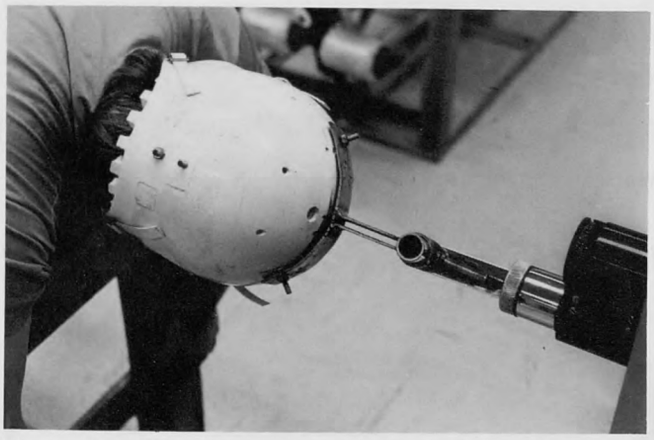

Figure 2 - The connector placed over the pronator/supinator attachment of the Cybex II.

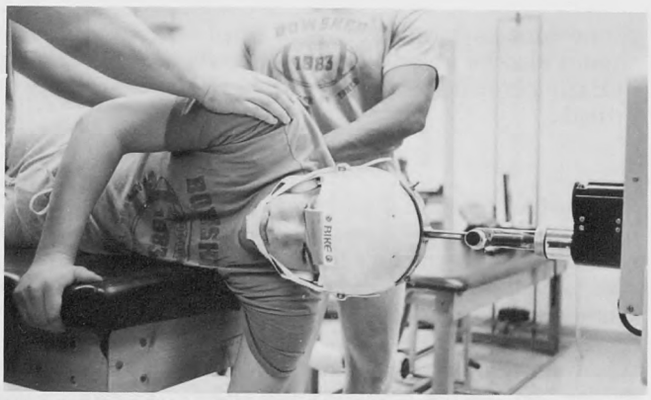

Figure 3 - Manual stabilization of the athlete being tested (anterior view).

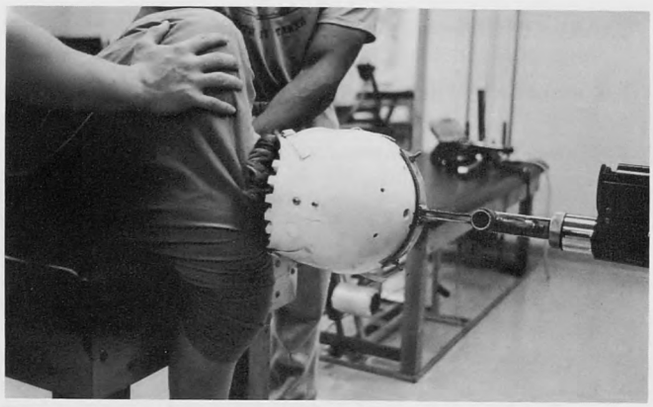

Figure 4 - Manual stabilization of the athlete being tested (posterior view).

Figure 5 - Prone testing position. The athlete is stabilized by padded belts.

Results

The Keuffel and Essec Planimeter* was used to compute the work area under the torque curve as outlined by Greninger (6). Studies by Wilkerson, et al. (20) has provided reliability coefficients of at least .95 when evaluating torque curve produced with Cybex speed at 60°/sec. or less. It is worth reiterating that our travel speed was 30°/sec.

With the scope of this paper being limited to the coupling procedure, the statistical results of the study will not be presented here. However, these researchers found the coupling medium to provide us with .88 reliability coefficient, and the athletes sujectively indicated the head gear to be tight but bearable. The steel

connector was durable and performed without fatigue. It should also be noted that the helmets did not develop radiating cracks from the additional holes that had to be drilled.

Summary

Fifty-four football players were selected for a study to evaluate cervical spine musculature. An interphase connector between the athletes head and the Cybex II was developed. A reliability coefficient of .88 was rendered from two pretests. The athletes were given three trials of right and left rotation. The players sujectively indicated the arranged protocol to be tolerable during the testing regimen. All fabricated equipment was durable and able to be reused at our convenience.

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Designing Athletic Training Facilities or "Where do you want the outlets?"

Michael R. Secor, ATC

Months have passed since the planning committee first met to work on the design of the new facility. The architect has been instructed to complete the working drawings and everyone is eager to see what has been designed. Final revisions are being made when you receive a drawing of "your" area with a note asking, "Where do you want the outlets?"

Too often the detail planning involved in new facility design is solely performed by members of the planning committee and the architect. These people may be only minimally acquainted with many of the specialized areas found within the facility. Without firsthand knowledge about these areas, it is difficult to recognize their specific requirements. As a result, many of the possible refinements that a sub-committee of area specialists could make are never identified.

One area that may suffer in particular is the Athletic Training Room (ATR). While relatively common in colleges and universities, the ATR is a new feature in many high schools. Though the trend is toward the development of more and better equipped training rooms, they are often created as an after-thought; that is, relegated to a leftover space or a converted storage room, closet, or bathroom. Still others are but a bench and cabinet in a corner of the locker room.

The ATR is a highly specialized area that warrants serious consideration during the planning of the overall athletic facility, and since the planning committee will largely determine the utility of the final product, it is necessary that membership be representative of those who will actually use the facility. In particular, it is important that the Director of Sports Medicine and/or the Head Athletic Trainer is directly involved throughout the entire planning process.

Mr. Secor is the Assistant Athletic Trainer and Manager of Recreational Facilities at Wellesley College, Wellesley, MA.

Considerations regarding the design of an ATR include location, size, and scope of function. The location is critical because it will affect ATR usage. Access to the training room and the location of the training room within the completed structure present some special requirements. An ATR should be:

a. accessible to men and women.
b. adjacent to the men's and women's locker rooms.
c. located in close proximity to indoor and outdoor activities.
d. easily accessible to ambulance services.
e. located in the vicinity of the weight room and/or corrective exercise room.
f. located on the ground floor (not up or down several flights of stairs).
g. accessible to the injured or handicapped. (You may have an athlete on crutches or in a wheelchair.)

The size of the Athletic Training Room is another critical feature that is based upon a number of variables, including:

a. the functions it will accommodate and the services to be rendered.
b. the specialized equipment and furnishings you wish to include in the area, (e.g. ice machine, freezer, taping tables, treatment tables, or rehabilitation equipment.)
c. the number of people it will accommodate. It is important to recognize variations caused by seasonal athletic, recreational, and instructional program offerings, as well as the populations involved.
d. the number of professional and student staff members.

After considering these variables, space requirements can be determined. A rough estimate of total space needs can be computed as follows:

Each taping or treatment table occupies approximately 100 square feet, which includes the table, the work area around the table, and associated counter/storage space. A single table will serve approximately 20 athletes per day. By determining the number of athletes you expect at a peak period and dividing by 20, you arrive at the number of tables your training room will

need. Multiply that figure by 100, and you will have the total square footage needed to accommodate your ATR. The minimum space needed for a training room is 300 square feet. This would accommodate one taping table, one treatment table, some counter space, and some miscellaneous equipment (2,3).

$$\frac{\text{Number of athletes at peak}}{\text{20 per table per day}} \times 100 \text{ sq. ft.} = \text{Total Square Footage}$$

Once the square footage of the space has been determined, you must decide whether separate rooms, alcoves, or one large area is best suited to your needs. The final design and layout of the ATR will determine its efficiency. It is important to position the most frequently used areas - the taping area and office -closest to the doorway.

There are six general types of functions and services that will take place in an ATR: general first aid and

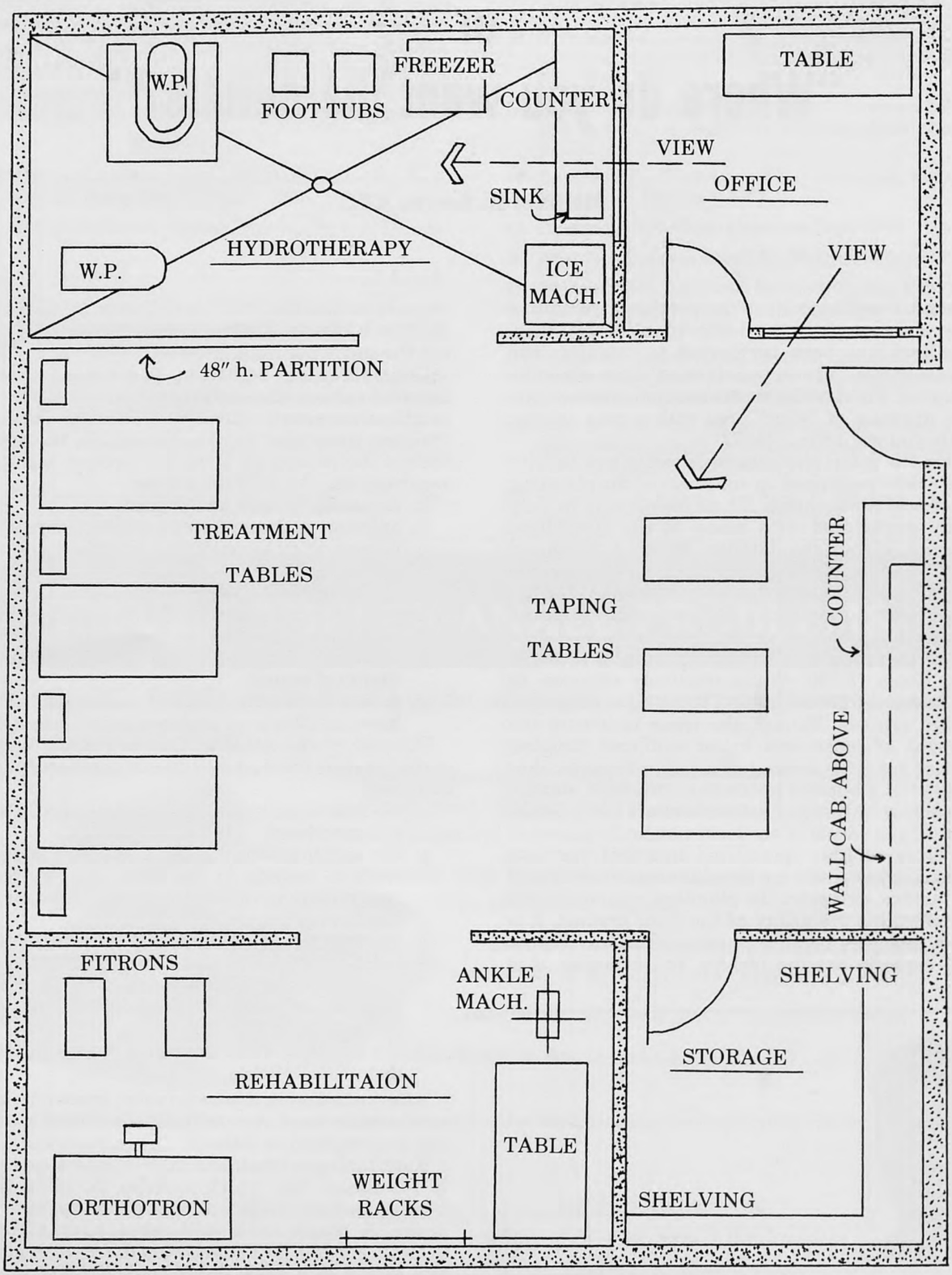

FIGURE 1. Athletic Training Room Floor Plan

taping, electrotherapy, hydrotherapy, rehabilitation, administration, and storage. The areas where these take place are discussed below.

General first aid and taping. This is one of the most highly utilized areas within any training room and accounts for a large percentage of the total space requirements. This area must accommodate taping tables and associated work, counter, and storage space.

Electrotherapy. Staffing qualifications and state licensure regulations may directly influence whether or not modalities such as ultrasound, shortwave diathermy, or galvanic stimulation, will be present in this area. In addition to providing space for treatment tables it is necessary to plan for enough electrical outlets to power a variety of special machines.

Hydrotherapy. This area should contain a variety of sizes of whirlpools to meet various demands. Foot sinks may also be installed for foot and ankle treatments. Other equipment requiring water connections and drains, such as a hydrocollator or ice machine, would also be located in this area.

Rehabilitation. The specialized equipment available and the emphasis your department places on rehabilitation and preventative strengthening will largely shape this area. Fitrons, orthotrons, multi-axial ankle machines, or low poundage free weights may be located here. You may choose to locate your specialized equipment in an existing weight room or in a corrective exercise room. If this is done, the alternate room should be in close proximity to the training room.

Administration Office. This area should be located so as to afford easy supervision of the entire training room. Partial glass walls with curtains provide the ability to supervise and also provide privacy for examinations, conferences, and treatments. An ATR office should be equipped with the general office furniture and fixtures in addition to an examination table. A telephone is essential. Access to the office may be through the training room in addition to a separate corridor door. Office space for the school physician may also be provided, depending on the institution. If so, lockable cabinets, and examination light, and other special equipment may be necessary.

Storage. Storage space is a frequently overlooked but extremely important consideration. The storage area should include sufficient cabinets and shelving to manage over-sized and large quantity items such as stretchers, splints, and tape. Adjustable shelving affords flexibility in inventory and ordering control. Climate control is another consideration because humidity and high temperature may have a detrimental effect on some supplies.

Several other features may be incorporated into the overall design of the training room. Shaving areas are becoming more common. These areas contain several electric shavers for removing hair from the extremities. Changing areas, showers, and a toilet may be desired, depending on the proximity of the ATR to locker room facilities and provisions for the handicapped. (These are expensive duplications of existing facilities.)

Physical Features

In the later stages of planning, the physical features of the training room - walls, lighting, ventilation, etc. - need to be considered. Each is important, and if ignored can negate the time and effort put forth in planning by rendering an area unsuitable for use. The following aspects should be kept in mind when the ATR is being designed.

Floors - should be easy to clean, with a non-slip finish. The floor should be sloped toward the hydrotherapy area to control water and facilitate cleaning.

Walls - should be easy to clean and resistant to moisture. Ceramic tile or a synthetic resinous material are good materials. Colors should be neutral with good reflective qualities. One wall should be allocated for counter and cabinet space. Also a sink should be included in the plans. A four foot wall might be used to separate the hydrotherapy area from the remainder of the training room to limit water spillage.

Windows - should be translucent so as to provide visual privacy. Inside windows should be provided to allow supervision of the training room from the office.

Doors - must be large enough to accommodate a wheelchair or an ambulance stretcher.

Ceilings - must have a minimum height of 10 feet to accommodate people standing on tables to have their knees or thighs taped or wrapped. Moisture proof acoustical ceiling tile is ideal.

Lighting - should be between 50-60 foot candles (2,3). Flourescents are recommended since they provide even and efficient light.

Electrical Outlets - should be positioned every 4 feet around the room and no higher than 2 feet from the floor (unless they serve a counter space). The training room should have entirely dedicated circuits. Ground Fault circuit breakers are a necessity in the wet area. Remote switches for the whirlpools are another method of avoiding electrical injury.

Heating System - should be able to maintain the ATR at a constant 76 degrees, given the sparse attire usually used there.

Ventilation System - must be designed to control humidity and exhaust odors.

Water - must be provided for the various whirlpools, sinks, and ice machines used in the training room. Individual hot and cold water connections and drains are recommended.

When a new facility is proposed be alert for opportunities to become involved. Save ideas - both pro and con - that affect the areas in which you specialize. Read through books and journals that deal with facility planning and visit other facilities to see how they have dealt with spaces. The philosophy, purpose, and priorities identified by the Athletic Trainer will help determine the ultimate shape of the Athletic Training Room and the impact that it will have upon others.

The realization that many people will benefit and be influenced through your efforts can make participating in the planning process an extremely exciting and rewarding experience. Your participation can make a difference.

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Athletic Trainer Manpower Survey of Selected Illinois High Schools

Gerald W. Bell, EdD, PT, ATC
Rodney A. Cardinal, MS, ATC
Jeffrey N. Dooley, MS, ATC

As part of the ongoing evaluation of the National Athletic Trainers Association (NATA) approved athletic training educational program at the University of Illinois, the NATA Professional Education Committee requires a verification and justification of need of an approved program (2). Direction from the National Association has indicated that the greatest need is at the high school level (1). Informational articles describing needs and opportunities have addressed various mechanisms for employment opportunities (3,4,5). The Governor of the State of Illinois appointed a task force in March of 1979 to address the epidemic proportion of high school athletic injuries (6). Fifteen recommendations were presented as part of the task force summary. These recommendations were, briefly:

1. Encourage the appointment of a State sports medicine director
2. Establish liaison with Illinois High School Association
3. Reactivate the sports medicine committee of the Illinois State Medical Society
4. Encourage physician involvement as high school team physicians
5. Design a model program of athletic health care standards
6. Support hiring of certified trainers
7. Support athletic trainers licensure
8. Support Illinois Athletic Trainers Association
9. Reevaluate preseason physicals by team physician
10. Support development of preseason conditioning programs
11. Support certification and recertification of coaches, including the American Red Cross and cardiopulmonary resuscitation
12. Emphasize proper equipment fitting and prevention of injuries
13. Reevaluate certification, recertification of officials
14. Require CPR certification for all officials
15. Institute a state-wide injury reporting system (6).

It was with these premises that those involved in the University of Illinois athletic training educational program compiled a packet composed of an athletic training flyer and a questionnaire to assess the status of the needs of the State and the direction of the athletic training education program.

The authors are at the University of Illinois, Champaign, IL 61820. Dr. Bell is Assistant Professor/Director of the Undergraduate Athletic Program. Mr. Cardinal is Assistant Athletic Trainer/Coordinator. Mr. Dooley is an instructor and the Physical Education Coordinator.

Procedures

The athletic training questionnaire packet was mailed by October 1, 1982. A total of 602 Illinois high school athletic directors were identified and surveyed with requested return of the postage-paid postcard by November 1, 1982. By December 1, 1982, 397 of the 602 (66%) cards had been returned. Complete data reduction of the questionnaires is seen in Table 1.

Discussion

First, the high school's athletic director was asked whether he/she had read the report by the Governor's task force on athletic injuries. Of 397 responses, only 37% replied that they had. When questioned if their school employed an athletic trainer, 27.3% replied that they did. Of these schools, 61.7% of them had certified trainers. Asked whether they would hire an additional trainer, 55.9% answered affirmatively.

The selected high schools were next questioned as to whether they believed the state should mandate trainers. In response to this question, more than half felt

positively about this issue (62.4%). Of the schools which did not currently employ an athletic trainer, 87.4% planned not to hire one. The schools which planned to hire a trainer in the future were asked as to how soon they would hire one, and the majority (57.9%) planned to do so in 1-5 years. Some schools (26.3%) hoped to hire a trainer after five years, while 15.8% planned to do so in less than one year. Money was the main reason schools did not plan to hire trainers (77.5%), with administration apathy (11.8%) and coaches already functioning as trainers (10.7%) being less popular reasons.

Table 1

ATHLETIC TRAINER MANPOWER SURVEY OF SELECTED ILLINOIS HIGH SCHOOLS

N=397

QUESTION		YES	NO	NO RESPONSE
Have you read the report of the Governor's task force on athletic injuries?		147	250	0
Percent respondents:		37.0	63.0	
Do you employ an athletic trainer?		94	303	0
Percent respondents:		23.7	76.3	
If yes, is he/she an ATC?		58	36	303
Percent respondents:		61.7	38.3	
If yes, would you hire more?		52	41	304
Percent of respondents:		55.9	44.1	
Should state mandate trainer?		246	148	3
Percent respondents:		62.4	37.6	
If not currently employing a trainer, planning to hire one?		43	299	55
Percent respondents:		12.6	87.4	
		1 Yr	1-5 Yrs	5 Yrs
If yes, when?		6	22	10
Percentage of respondents:		15.8	57.9	26.3
		MONEY	ADMIN APATHY	COACHES' FUNCTION
If no, why not?		210	32	29
Percentage of respondents:		77.5	11.8	10.7
	ADMIN	COACH	EMT	RPT
Who performs trainer's duties?	8	288	10	7
Percent respondents	2.6	92.0	3.2	2.2
		PE/HEALTH	MATH/ SCIENCE	HUMANITIES
Recommended teaching areas?		110	94	17
Percent of respondents:		49.8	42.5	7.7

When questioned as to who performs the trainer's duties in the schools, 92% responded that coaches provide this health supervision. Adminstrators, emergency medical technicians, and registered physical therapists performed the functions of a trainer in the remaining schools. Further questioning as to what teaching capabilities were desired for the prospective athletic trainer indicated that the area physical education/ health (49.8%) and math/science (42.5%) were the most desired teaching credentials. Teacher's abilities in the humanities was recommended by only 7.7% of the respondents.

Reviewing the data, one first recognizes a problem is that many athletic directors were unaware of the Governor's task force summary (63%). While approximately 2/3 of the high schools do not have a trainer, the schools which have a trainer indicated a desire to have more coverage for their schools. A great number of schools which have trainers do employ a certified trainer (61.7%).

An interesting point in the survey is that, while many high schools are unfamiliar with the results of the Governor's task force summary, a large percentage (62.4%) of the schools believe that the state should mandate trainers. Unfortunately, of the schools which do not employ an athletic trainer, 87.4% do not plan to hire one. The majority of schools which plan to hire trainers show an interest in doing so within 5 years (73.7%), an encouraging figure for future athletic trainers.

The limitations for most high schools is the fiscal crisis. This shortage of funding was the reason for not hiring trainers (77.5%).

Summary

Several recommendations from the task force study are reiterated by the data. First, the state athletic trainers need a better liaison with the high school athletic association and athletic directors association in order to disseminate pertinent information to the high schools. Secondly, the Illinois State Department of Education and Registration needs to appoint a sports medicine director to work with the Illinois High School Athletic Association and Illinois Athletic Trainers Association to help the high schools. Thirdly, the support of the hiring of a certified athletic trainer at every high school or, if not economically feasible, a trainer based at each school district is needed. If support for certified athletic trainers in the schools cannot be obtained, it is necessary to institute mandatory course requirements in athletic training classes for coaches in the high schools.

Finally, if state mandated athletic trainers are not obtained, then sports medicine continuing education courses for high school coaches must be mandated. All athletic trainers in the State of Illinois should actively educate coaches, athletes, and parents to the need of the trainer as the key to proper athletic health care supervision. The key to this survey for the University of Illinois curriculum will be in identifying prospective teaching areas as well as prospective high school employers.

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The Effects of Variable Training Speeds on Leg Strength & Power

Gary J. Vitti, MS, ATC

Great advances have been made recently in providing athletes with more efficient training programs. Exercise physiologists have completed a significant amount of research comparing isotonic, isometric and isokinetic training programs. The force and velocity characteristics of muscle have been well documented and, most recently, a trend in the investigation of muscle fiber typing and fiber splitting (hyperplasia) has surfaced.

While advances have been made in these areas, research is yet inconclusive with respect to strength training at high speeds (high speed, low load) as compared to low speeds (low speed, high load). High speed training programs have been shown to increase strength at and below the training speed while low speed programs revealed strength gains only at low speeds. (8, 11). This evidence indicates that while most athletic events involve high speed, ballistic type movements, the athlete should train at high speeds equalling or greater than those speeds used during the actual sport. These implications are supported by the findings of Van Oteghen (16).

As early as 1922 researchers such as Hill (5) and Lupton (10), followed by Levin and Wyman (9) studied force/velocity relationships. Results of this research indicated that as the velocity of muscular contraction increased, the force it exerted decreased. More recent literature not only supports this theory, but further correlates the force/velocity relationship with fiber composition (15).

Some 30 years after the force/velocity theory was established, De Lorme, Ferris, and Gallagher (3) unsuccessfully attempted to correlate the rate of muscle contraction with weight lifting. Further studies were performed by Smith and Whitley (14) that were also unsuccessful in finding a significant relationship. In 1958, Hellebrandt and Houtz (4) indicated that increasing the rate of training was as effective as increasing the resistance.

Hellebrandt's postulation has been the premise for the continuation of research that supports training at high speeds. More recent studies have implied that although greater strength gains may be accomplished with slow speed training, high speed training increases of strength may be due to the increase of the number of fibers recruited and/or the bringing about of a more synchronous firing of motor units (8).

These studies have all investigated relative variables of dynamic muscular contraction. However, according to Rosentswieg, Hinson and Ridgeway (12) clear evidence has yet to be produced showing the effect of different speeds upon strength development. A thorough search of available literature, including the interval since the Rosentswieg et al study, revealed little evidence to fully elucidate this relationship. Recently, Coyle and Feiring (2) and Caizzo, Perrine and Edgerton (1) presented findings stating that strength increases at fast and slow contractile velocities. Sherman et al (13) reported similar findings with a rehabilitation program following arthrotomy. Thus, the purpose of this study was to determine the effect of different training speeds on the development of strength and power.

Methods

A minimum of 30 untrained subjects were sampled from the University of Utah Introductory Weight Training classes provided through the Physical Education Department. Qualified subjects were males under 30 years of age. This age group was selected in light of research findings showing rapid declines in dynamic strength after age 30 (7).

Subjects were divided randomly into three experimental groups (Table 1). A control group was selected from a pool of volunteers. A pretest was administered to all subjects allowing for an objective and reliable measurement of dynamic strength (6). An isokinetic device (Cybex II, Lumex, Inc., Ronkonkoma, NY) was used for this purpose. The Cybex II consists of a lever arm which was attached to the tibia of the subject. The lever arm is mechanically prevented from surpassing a preset and constant speed. The resistance is proportional to the dynamic tension produced in the muscle at every point in its shortening range. The subject then performed maximal knee extension from 90 to 0 degrees (0 degrees = fully extended knee). The axis of rotation of the machine was aligned with the anatomical axis of rotation in the

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knee joint. As the subject exerted muscular force throughout the 90 degree arc of motion, the produced force was registered as torque continuously during the movement on a Cybex Dual-Channel Multi Strip Chart Recorder. The recorder simultaneously displayed position (joint angle) in the torque developed. The subjects were encouraged to exert maximal muscular contractions throughout the procedure.

Table 1

Subject Division by Group

	Experimental Group I	Experimental Group II	Experimental Group III	Control Group
Pretest Strength	N = 9	N = 10	N = 9	N = 10
	Experimental Group I	Experimental Group II	Experimental Group III	Control Group
Pretest Power	N = *9*	N = *10*	N = *9*	N = *10*

The testing protocol was administered to both right and left legs. The procedure began using a strength test with the subject performing three submaximal contractions followed by three maximal contractions at a preset velocity of 60°/sec. and a torque range scale of 0-360 ft. lbs. Following the strength test, the subject performed a power test in which there were three submaximal muscular contractions followed by three maximal contractions at a preset velocity of 240°/sec. and a torque range scale of 0-180 ft. lbs. For each test, the highest peak torque score was recorded as pretest strength and power.

Following the pretest strength and power evaluations, the subjects began group specific training programs.

Table 2

Training Protocol for the Experimental Groups

Group	Orthotron Setting	Duration
Low Speed		
I	2	30 seconds
I	3	30 seconds
I	4	30 seconds
I	5	30 seconds
High Speed		
II	7	30 seconds
II	8	30 seconds
II	9	30 seconds
II	10	30 seconds
Low/High Speed		
III	2	30 seconds
III	3	30 seconds
III	9	30 seconds
III	10	30 seconds

Four sets were performed per leg. Every set consisted of a 30-seconds exercise bout at each of the four Orthotron settings designated for the respective groups. There was also a 60-second rest period between exercise bouts.

The subjects exercised utilizing an isokinetic device (Orthotron, Lumex, Inc., Ronkonkoma, NY). The Othotron features exercise speeds ranging from isometric (0°/sec.) to faster than 300 degrees per second. Training procedures were employed as shown in Table 2.

The control group was pretested in the same manner as discussed for the experimental groups but restrained from any training programs during the course of this study. The experimental groups were engaged in their respective training programs without deviation for six weeks at a rate of three training sessions per week. Upon successful completion of the training program, a posttest was administered to all subjects using the same protocol and testing device as the pretest. For each test, the highest peak torque score was recorded as posttest strength and power.

Prior to the initiation of this investigation, approval from the University of Utah Review Committee for Research with Human Subjects was obtained. In addition, an informed consent was obtained from all subjects as required by that committee. All testing procedures were thoroughly explained to each subject. The subjects were informed that they could terminate or withdraw from the study at any time without prejudice.

Results

The purpose of this study was to determine the effects of variable training speeds on the strength and power outputs of the quadriceps femoris and hamstring muscle groups. The investigation was designed to detect changes in the strength and power outputs of experimental groups by training individuals at different speeds on an Orthotron isokinetic exercising device. Conclusions were drawn by comparing the changes that occurred between experimental and control groups. Comparisons were also made among the different experimental groups.

Indications of the pretest on Group Equality

Experimental and control group mean values for strength and power output are plotted in Tables 3 and 4. The oneway ANOVA was performed and revealed no significant differences ($p > .05$) among the pretest strength and power output means of the experimental and control groups. All groups were statistically equal at the pretest.

Training Program Results Compared Between Experimental & Control Groups

Experimental and control group mean values for strength and power outputs are plotted in Tables 5 and 6. The t-tests were first performed using pre-and posttest data for strength output of the quadricep and hamstring muscle groups. Significant differences ($p < .05$) were revealed in five of the six hamstring comparisons for strength output of the experimental groups while no significance was shown for the control group. There were no significant differences ($p > .05$) shown in any of the experimental or control groups for quadricep strength output. Secondly, t-tests were performed in the same manner for the power output of the quadricep and hamstring muscles groups. Significant differences ($p < .05$) were revealed in five of the six hamstring comparisons for the experimental groups while no significance ($p > .05$) was shown for the control group. There was also significant differences ($p < .05$) shown in four of the six quadricep comparisons for the experi-

Table 3

Pretest
Strength Means
(Ft-Lbs)

Group	Left Leg Extension	Left Leg Flexion	Right Leg Extension	Right Leg Flexion
Low	185.0	103.3	176.8	124.9
High	179.2	97.3	183.4	95.9
High/Low	183.9	101.8	180.9	102.9
Control	169.2	85.2	169.0	89.8

Table 4

Pretest
Power Means
(Ft-Lbs)

Group	Left Leg Extension	Left Leg Flexion	Right Leg Extension	Right Leg Flexion
Low	90.8	67.2	89.7	67.3
High	89.8	65.1	94.4	65.9
High/Low	91.2	72.5	93.9	70.2
Control	80.8	54.5	81.8	60.8

Table 5

Pre- Posttest Comparison for the
Effectiveness of the Isokinetic
Strength Training Program

Right Leg	Left Leg Pretest	Posttest	Pretest	Posttest
Low				
Extension	185.0	201.4	176.8	180.8
Flexion	103.3	119.7**	124.9	120.0
High				
Extension	179.2	182.7	183.4	180.0
Flexion	97.3	121.3**	95.9	116.4*
High/Low				
Extension	183.9	188.4	180.9	188.5
Flexion	101.8	120.6**	102.9	16.9*
Control				
Extension	169.2	160.0	169.0	168.5
Flexion	85.2	91.2	89.8	96.5

* Significant gain pre- to posttest (p <.05)
**Significant gain pre- to posttest (p. < .01)

Table 6

Pre- Posttest Comparison for the
Effectiveness of the Isokinetic
Power Training Program

Right Leg	Left Leg Pretest	Posttest	Pretest	Posttest
Low				
Extension	90.8	102.0*	89.7	94.8
Flexion	67.2	78.1**	67.3	77.7**
High				
Extension	89.8	102.3*	94.4	99.7
Flexion	65.1	86.8**	65.9	83.9**
High/Low				
Extension	91.2	103.2*	93.9	103.0
Flexion	72.5	84.5*	70.2	75.6
Control				
Extension	80.8	85.8	81.8	92.8
Flexion	54.5	61.5	60.8	65.0

* Significant gain pre- to posttest (p <.05)
**Significant gain pre- to posttest (p <.01)

mental groups with no significance (p >.05) shown for the control group.

Training Program Results Compared Between Experimental Groups

The oneway ANOVA was performed to determine the effectiveness of variable training speeds on leg strength power. The F ratio with two degrees of freedom between groups and 23 degrees of freedom within groups ranged from 1.049 to .017 (p < .05). There were no significant differences among the three experimental groups for the eight dependent variables.

Discussion

The objective of this investigation was to determine the effects of variable training speeds on the strength and power outputs of the quadriceps femoris and hamstring muscle groups.

The results indicated that both the experimental and control groups were equal at the pretest for both strength and power outputs. Subsequent to the establishment of intergroup equality at the pretest, statistical analysis was performed to indicate the effectiveness of the training programs. Significant differences (p < .05) were revealed in the experimental groups from pre- to posttest for both strength and power outputs. There were no significant (p > .05) differences indicated for the control group. These changes are believed to be due to the training effect. Further analysis was performed to establish the effects of the different training programs on strength and power outputs of the experimental groups. No significant differences (p >.05) were indicated for strength or power when comparing the hamstring or quadricep muscles of the three experimental groups. Speculation as to why this occurred will be the object of this discussion.

Similar results were shown by Van Oteghen (16) comparing solely high and low speed training programs with a control group. The results indicated significant increases (p >.05) from pre to posttest measures for both the high and low speed training groups with no significant increases (p >.05) for the control group. Further analysis suggested that although all training groups exhibited strength and power increases due to the training effect, the mean measures were not great enough to differentiate in favor of one speed of isokinetic training over the other. Van Oteghen suggested that greater increases occur early in the training program as compared to those increases which occur later. The six-week training program used in this study may be regarded as an early phase of training. This would suggest that not until the later phases of strength and power training will one see the subleties of high speed vs low speed training take effect. Sherman et al. (13) supports the principle that training programs should encompass slow, medium and high speed training. The support for this principle was derived from an isokinetic

rehabilitation program, using variable training speeds, following knee surgery. The program lasted 14 weeks, which is over twice the time used in this study. Finding significant results following a 14-week training program as Sherman et al. (13) have, may suggest, as Van Oteghen (16) stated, that a six- to eight-week training program may still be regarded as the early stages of strength and power training.

Prior investigations show results contrary to what has been reported thus far. Ciazzo et al. (1) have claimed significant differences ($p > .05$) with a four-week training program. Coyle et al. (2) and Moffroid and Whipple (11) demonstrate significant differences ($p > .05$) among the experimental groups utilizing a six-week training program. In light of the many contrasting opinions, it appears that further investigation in necessary to fully elucidate these questions.

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In Memoriam

Byron Jack Bird
November 5, 1921 - December 26, 1983

Byron Bird was born in Heavner, Oklahoma, where he graduated from high school in 1939. The following fall he enrolled at Oklahoma State University where he was an outstanding blocking back prospect for Coach Jim Lookabaugh. Lookabaugh often expressed the opinion Bird was the finest blocking back he ever saw.

His collegiate athletic career was cut short as he enlisted in The Marine Corps during World War II. Bird was to have two great allegiances during his lifetime, Oklahoma State and the Marines.

As lieutanant in the Marines, Byron was first decorated with the Silver Star at Tarawa, and later honored in the field on Guadalcanal. Then came Saipan when Byron Bird was only 22 years old.

As his company piled ashore to establish a beachhead, Bird was hit with artillery fragments. His leg was injured so badly he had to sever the damaged limb himself before medical help could arrive through the Japanese cross fire. Before his honorable discharge he was awarded two Purple Hearts, the Bronze Star, Legion of Merit and two Presidential Unit Citations.

In 1946, he returned to OSU to serve as a student trainer. He graduated in 1949 and served as trainer for the Los Angeles Dons professional football club until 1950.

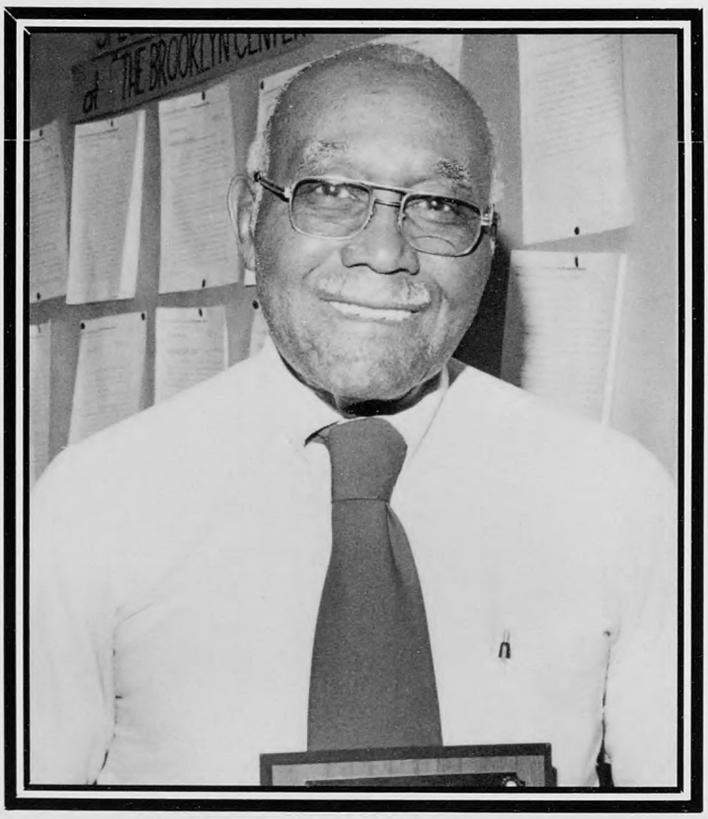
He then returned to Oklahoma State as an aide to L.H. "Doc" Johnston until Johnston retired in 1961. Bird was the Head Trainer at OSU from 1961 until 1973. In 1973 his title was changed to Athletic Trainer and changed again in 1976 to Assistant Coordinator of Sports Health, Safety and Equipment. Bird retired on June 30, 1983, but remained active with the OSU athletic department. He served as a host for visiting teams, seeing to their locker, training and equipment needs until his death in 1983.

Byron enjoyed many honors in athletic training. He was a trainer for the 1971 Pan American Games, worked AAU tournaments in 1972, 1977, and 1978, and was a special assistant to the Houston Oilers from 1968-1970. Bird also worked at the U.S. Olympic Camp in Colorado in 1971 and 1972.

Byron Bird was an active member of the NATA. He served as a district officer in the capacities of secretary-treasurer and director. In 1979 he was named to the NATA Hall of Fame. Previously he had been awarded his 25 Year Award.

Byron Bird will always be remembered as one of the elder statesmen in The Big Eight Conference. He was an inspiration to many young trainers in that area. His down-home sense of humor and easy going manner were trademarks. He will be missed by all who knew him. Byron Bird is survived by his wife Kathleen, and three children, two sons Mike and Stephen and a daughter, Susan.

In Memoriam



Charles "Doc" Turner
March 2, 1895 - April 16, 1983

The athletic training profession lost another friend with the death of Charles "Doc" Turner, 88, on April 16, 1983. He worked diligently as a trainer for over 60 years and will always be remembered by the many groups he worked with in the New York City area.

Charles Turner was born in Brooklyn, New York, on March 25, 1895. He served in World War I as a member of the 15th Regiment, 369th AAA, serving in France in a unit that distinquished itself in combat.

A graduate of New York University, "Doc" was a man of many letters with a Masters from Columbia University, a Doctor of Chiropractic from the Pennsylvania Chiropractic College, and a Doctor of Neuropathy from the Pennsylvania College of Naturopathy.

"Doc" got his start as a player, coach and trainer with the New York Cubans baseball team in the old Negro National League. He worked in the Olympics since 1926 as an advisor to such countries as Spain, France, Egypt, Israel and Germany. He was even the Director of Athletics for the Venezuelan goverment from 1930-1933. In the 1940's he acted as an athletic consultant to China.

In the New York area "Doc" worked with the Harlem Globetrotters for 5 years, and also toured the world with the New York Renaissance, a forerunner of the New York Knickerbockers basketball team in the National Basketball Association. In 1967 he worked with the New Jersey Americans of the American Basketball Association, a forerunner of the New Jersey Nets. He was a life member of the Basketball Hall of Fame in Springfield, Massachusetts.

In track "Doc" worked with the Old Mercury Athletic Club, a forerunner to the New York Pioneers. He also worked in rehabilitation at New York City Hospital and recently served as Head Athletic Trainer for Long Island University from 1970 until his retirement in 1981. Even after his retirement "Doc" kept active as head athletic trainer in camps such as the Five Star Basketball Camp in New York.

One of "Doc's" favorite groups was the Boys of Yesteryear, a group of ex-athletes and educators who sponsor youth sports and scholarship programs. Recently a sports medicine clinic at the Central Harlem Group Facility was named in his honor, and the Borough of Brooklyn awarded him a Citation saluting his achievements and dedication.

"Doc" Turner was a man of many awards, including membership in the World Health Science Hall of Fame in Dusseldorf, Germany and the Helms Hall of Fame in 1975. He received his 25 Year Award from the National Athletic Trainers Association in 1974.

"Doc" is survived by his wife, Ada. He will be missed by his fellow trainers and by the many he touched throughout the years.

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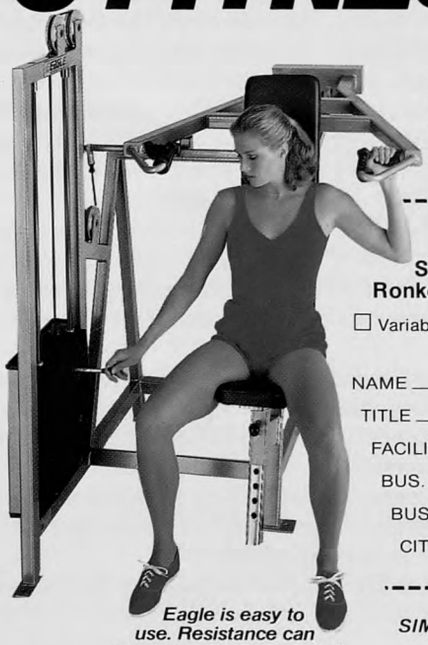

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Burn-Out Prevention and Career Change for Athletes

News Release

One-dimensional people, like the dedicated professional tennis player, for example, or the totally focused Olympic gymnast, are more vulnerable to burn-out than many business and professional people, according to Dr. Sol Landau of the Mid/Life Services Foundation.

"One-dimensional people have no balance and athletes are required, by the nature of competitive sports' cycle of practice and perform, practice and perform, to lead an unbalanced life style. Without preventative measures, an athlete is heading for a burn-out crisis," Landau warns.

Athletes are susceptible to burn-out earlier in life than business people, who hit burn-out, generally, in their 40's, although burn-out can occur at any age. Because an athletic career is short, Landau says, "athletes encounter in their 30's what other people don't often encounter until their 60's. Often they are totally unprepared psychologically, and sometimes they are unprepared economically, for retirement and a career change."

This unpreparedness comes from two factors: limited training for other occupations and the pressure to achieve during an athletic career.

"An athlete's career is limited," Landau notes. "There is pressure to win all the time. They are constantly—whether pro or amateur—in the public eye. And, they face the ongoing threat of an injury which could end their career at any moment."

"Many sports figures receive an inferior education at the expense of athletics. They are geared toward sports at a very early age and then, their average successful career is only five to ten years long. They learn very few non-sports skills—which leaves them with few alternatives later on."

Athletes who have successfully conquered this problem would include those like former Miami Dolphin Nick Buoniconti, who is an attorney and agent for other sports figures, or Bob Griese, who has moved into coaching and sports commentary. But many famous sports figures have been recently in the news as burn-out victims.

Dick Vermeil, head coach of the Philadelphia Eagles for seven years retired at age 46. He stated plainly, "I'm burned out. . . .I'm physically and mentally drained."

Bill Walsh, head coach of the San Francisco 49'ers, says he burned out at age 57—in his 27th year of coaching. "I was totally drained physically, mentally and emotionally. It took everything I had."

Professional coaches and football players aren't the only athletes who can burn out. Even dedicated high school team players are susceptible. And what is the cure?

Prevention.

That's where Dr. Landau steps in. Via the Mid/Life Services Foundation, a non-profit organization that works with burnout and career change, Landau is offering six two-hour sessions of a specialized program focusing on athletes, and telling them how to prevent burn-out and how to prepare for the inevitable career change.

"We'll deal with the nature of burn-out; evaluate the problem; present solutions that cover intervention, cure and prevention; and discuss relevant coping skills," Dr. Landau explains. "We are planning a thorough process that explores every facet of the problem: emotional, physical, psychological and intellectual."

For further information about the Foundation and its programs, call (305) 667-9999, or contact the Foundation at Suite 212, Dadeland Towers North, 9200 South Dadeland Boulevard, Miami, Florida 33156.

Jog With Care

Good Health Digest

Dr. Kenneth H. Cooper, the "father" of aerobics, who has been preaching the value of jogging for more than two decades, warns that many people are hurting themselves by overdoing it. Not only that, but Dr. Cooper, who heads the Aerobic Center in Dallas, said that jogging isn't even the best aerobic exercise. In fact, he lists it third among those activities that improve the body's ability to distribute oxygen - in other words, activities that increase aerobic capacity.

The "big five" aerobic activities are cross-country skiing, followed by swimming, jogging or running, outdoor cycling and walking. While Dr. Cooper still believes jogging is an excellent activity for the average person, he says covering more than three miles a day five times a week "is reaching the point of diminishing returns."

Extra running for the average individual, according to Dr. Cooper, "can not only cause musculoskeletal problems, but may eventually terminate the exercise program because physical problems would be too severe to continue."

Pillow Talk for Aching Backs

Good Health Digest

To ease back pain at bedtime, try these tips as reported in The Executive Fitness Newsletter. If you sleep on your back, raise your knees with a couple of pillows. On your side, put a pillow between your knees to lessen pressure on spinal discs. To reduce lower back sag, sleep on your stomach with a pillow under your pelvis.

Breath of Life

Reader's Digest

A simple breath measurement called the forced vital capacity (FVC) test is proving surprisingly valuable. To

measure FVC, the patient takes a deep breath and then exhales forcefully into a spirometer. The more air blown out, the better. "The results are highly indicative of a person's general state of health," says Dr. William B. Kannel of Boston University School of Medicine, and former director of the Framinham Heart Study, which monitored the health of more than 5000 persons for over two decades. In recently analyzed data from that study, FVC results were "powerful predictors of longevity and mortality, better even than big guns like hypertension."

An annual FVC test can give early warning of increased risk for heart attack and stroke, and such diseases as emphysema and chronic bronchitis, which often go undetected until permanent lung damage has occurred.

Ligamentous Surgical Implants

Reader's Digest

A new surgical implant developed at the University of Medicine and Dentistry of New Jersey-New Jersey Medical School is showing promise in the repair of torn, stretched or broken ligaments and tendons. Says Dr. Andrew Weiss, chief of orthopedic surgery at the university, who developed the device with biomedical engineers Harold Alexander and John Russell Parsons and orthopedic surgeon Dr. Irving Strauchler, "The surgery may be especially important to athletes and to victims of crippling injury." Hundreds of thousands of Americans yearly injure tendons and ligaments, especially in the legs.

The implant looks like a black typewriter ribbon and comprises 10,000 separate carbon filaments coated with a specially developed plastic polymer called polyactic acid. The surgeon weaves the ribbon in and around and through the injured tissue to connect and reinforce the damaged sections. Once inserted, the implant acts as a scaffold for the growth of new connective tissue, which the researchers say is almost identical to that in normal ligaments and tendons and after about a year can take the same stress.

The implant is being used experimentally at 16 centers in the United States and Great Britain. In about 200 operations so far, no failures have been associated with it. But experts caution that further study is needed before the Food and Drug Administration can approve it for general use.

Sports Prosthesis

Physical Therapy

The Super Sport Hand, by Therapeutic Recreations Systems, Inc., is designed for athletes with upper extremity amputations. While standard prostheses may not be appropriate for athletic use, this 12 ounce unit with soft, durable, elastic polymer construction provides a suitable alternative. Energy storage and reflex action of synthetic rubber is designed to duplicate biomechanical functions of the hand. The cupped shape imitates natural palm configuration. The unit is purported to be useful for such sports as basketball, football, soccer, rugby, volleyball, and gymnastics. For information write to:

Therapeutic Recreation Systems, Inc.
1280 28th Street, Suite #3
Boulder, Colorado 80303 +

Announcements

Announcement

Congratulations to the following members on being elected "Trainer of the Year" in their respective categories.

Ronnie P. Barnes, Professional Division
Bobby Barton, College Division
Elisa Cangialosi-Camillone, Junior College Division
Roger A. Kalisiak, High School Division

The individuals were honored at a dinner and presentation ceremony in Cincinnati on February 6. The Drackett Company-Nutrament Product Division has awarded $7000.00 in scholarships and grants to the athletic training profession.

Otho Davis, ATC
Executive Director

Schedule of Future Sites and Dates NATA Certification Examination

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

Completed applications must be received in the Certification Office by the deadline for the date chosen. However, this does not guarantee the first choice if site and date. Applications are accepted and scheduled in order of remittance.

January 8, 1984
Deadline for returning applications is 11-26-83

New Britain, CT	Albuquerque, NM
Philadelphia, PA	Costa Mesa, CA
Raleigh, NC	Richmond, KY
Chicago, IL	Portland, OR
Ft. Worth, TX	

March 18, 1984
Deadline for returning applications is 2-4-84

Boston, MA	Tucson, AZ
Pittsburgh, PA	Sacramento, CA
Springfield, VA	Richmond, KY
Chicago, IL	Seattle. WA
Lincoln, NE	

June 24, 1984
Deadline for returning applications is 5-12-84

New Britain, CT	Cedar Falls, IA
Syracuse, NY	Ft. Worth, TX
Raleigh, NC	Denver, CO
Anderson, IN	Costa Mesa, CA
Madison, WI	Nashville, TN

August 5, 1984
Deadline for returning applications is 6-23-84

Boston, MA	Lawrence, KS
Harrisburg, PA	Costa Mesa, CA
Raleigh, NC	Chattanooga, TN
Anderson, IN	*Eugene, OR
Dayton, OH	

* indicates change from previous listing

Application requests must be in written form. Telephone call requests cannot be honored. To obtain an application write to:

NATA Board of Certification
Application Request
Post Office Drawer 1865
Greenville, NC 27835-1865

Note: 1985 dates will approximate 1984 dates on a regional basis.

1984 NATA, I

WHAT
The 1984 NATA, Inc. Convention
"Something for the Family"

WHEN
June 10 - 13, 1984

WHERE
Nashville, Tennessee
"Country Music USA"

HEADQUARTERS
Opryland Hotel

BE ADVISED
Dress cool, comfortable, and casual. Some folks may be cutting off ties. Jeans and boots are right in style but please bring a good pair of walking shoes. The temperature will be 85 to 95 and humid.

THE OPRYLAND ENTERTAINMENT COMPLEX

THE OPRYLAND HOTEL® — "Born to Tradition" — A world under one roof and large enough to handle our complete convention.
Swimming — an award winning heated pool is located in the center courtyard. **Shops** — many - from newsstand to boutiques. **Automobile rental** — located in lobby of hotel, as low as $30 per day, unlimited miles. **Bringing the children** — Opryland Hotel Guest Service provides cribs for registered guests at no charge. See details on babysitting service. **Beauty salon** — located in hotel. **Souvenir and record shop** —located in hotel. **Recreation** — Hotel Guest Services will help you find a golf course to play. Six lighted tennis courts and pro shop are located on hotel grounds -nominal fee. See "competitive exercise." **Restaurants** — four restaurants are located in the hotel — from coffee shops to cuisine. However, Nashville is known for it's "downhome" cooking. **Lounges** — four lounges are located in the Opryland Hotel. (The Stagedoor Lounge is a spectacular, two story, seven tiered show lounge. It is also the home of WSM's Waking Crew — radio's only live band — each Monday-Friday morning from 7:45 a.m. to 9:00 a.m.) **Transportation to Opryland and The Grand Ole Opry** — Bus service for $1.00 per person

— — The Opryland Hotel offers much more — you will not believe it's beauty — —

"COUNTRY MUSIC USA"

THE GRAND OLE OPRY® — "The World's Longest Running Radio Show"
Broadcast live every Friday and Saturday night on WSM, 650 on your AM dial, the Grand Ole Opry is known lovingly as "the mother church of country music." Only about 60 acts can claim membership in the Opry which is staged in the 4,400 seat Opry House, known as the world's largest broadcasting studio. Come join us and witness a part of American history. Due to International Fan Fare Week the NATA nor individuals can secure tickets for the Friday or Saturday night shows of our convention. The NATA **has made** arrangements for a limited number of tickets for the 3 p.m. Saturday afternoon matinee, June 9, 1984. This 2 hour show will star Grand Ole Opry performers who play the Friday and Saturday night shows. These **tickets must be secured through Fred Hoover** at the address below and he must have your order in hand by May 1, 1984. No ticket orders will be processed after this date and no tickets will be available at the convention. Tickets are $7.00 each — a reserved seat. Mail your check for the number of tickets desired to:

Mr. Fred Hoover
NATA P.O. Box 248
Clemson, South Carolina 29631

SORRY — This is nonrefundable and your tickets will be in your registration packet.

OPRYLAND ® — "The Home of American Music" — Come Hear America Sing
A 120 acre theme park filled with more than a dozen fully staged musical productions and a score of rides and adventures. Opryland sets the pace nationally for live theme park entertainment. Its shows focus not only on country music, but also on bluegrass, gospel, rock 'n' roll, broadway, pop and more. The NATA membership will have an opportunity to secure tickets at discount prices. For $14.40 each (an $18.00 value) you will have the opportunity to spend any two consecutive days in the park. The only expense, once you enter the park, is your food and souvenirs. Tickets will be available on advance registration cards as well as at the convention. This is a **"DON'T MISS"** item and you cannot see and do it all in one day.

GRAND OLE OPRY SIGHTSEEING TOURS® — These tours offer a wide range of Nashville sightseeing. Itineraries cover historical areas such as The Hermitage (home of President Andrew Jackson), cultural sites such as the Tennessee Botanical Gardens and Fine Arts Center and popular attractions such as Music Row and the homes of country music stars. Interested? Just stop by the Tour Desk of the Opryland Hotel and they will help you select a tour to meet your interest.

THE NASHVILLE NETWORK ℠ —
The Nashville Network cable television service is the country's first and only TV network devoted exclusively to the finest in Nashville-style entertainment programming. Most of its shows are produced at Opryland. Among the network's most popular offerings are "Nashville Now" and "Opryland On Stage". When shows are taped in Opryland showpark, you can be in the audience as part of your Opryland visit. To inquire about taping and performer schedules during your visit, call 615-889-6611.

SOME OTHER NASHVILLE ATTRACTIONS — downtown is 15 minutes from The Opryland Hotel.
Music Row — headed by the Country Music Hall of Fame and Museum -**Historical Sites** — The Hermitage, The Parthenon, Fort Nashboro — **Twitty City** —**Riverboat Cruises** - ride a paddlewheeler on the Cumberland River — **Car Racing** - each Saturday night — **Factory Outlets** — **Ryman Auditorium** - original home of The Grand Ole Opry — **Museums** —**Shopping Malls** —**Antique Malls** — **Restaurants** - any kind and price range you desire — Printer's Alley - many clubs and restaurants featuring live entertainment from dinner shows to exotic dancing.

JUNE 10 - 13 NASI

INC. CONVENTION

TENTATIVE PROGRAM
1984 NATA CLINICAL SYMPOSIUM & WORKSHOP
Opryland Hotel, Nashville, Tennessee
June 10-13, 1984

SUNDAY MORNING ($15.00 each)

1. AOSSM — Clinical Workshop -Injuries to the Knee - Including work with knee specimen
2. Aerobic Dance for Conditioning
3. Pre-Participation Evaluation

SUNDAY AFTERNOON

Schering Symposium - Information to follow

MONDAY MORNING

It's Their Injury, Not Yours
Joe Gieck, Virginia

Drugs - Dealing with Denial
Charlie Jackson, NFL

Keynote Address
Pinky Newell, Purdue

National Business Meeting

MONDAY AFTERNOON

Replacing the Anterior Cruciate Ligament
William T. Youmans, MD, Knoxville, Tennessee

Thigh Injuries
Jim McGhee, Louisville, Kentucky

Knee Evaluation
Pinky Lipscombe, MD, Nashville, Tennessee

District Meetings

TUESDAY MORNING

Throwing Mechanisms, Injuries & Management
Lyle Norwood, MD, Hughston Orthopaedic Clinic, Columbus, Georgia
Jim Andrews, MD, Hughston Orthopaedic Clinic, Columbus, Georgia
Tab Blackburn, Hughston Orthopaedic Clinic, Columbus, Georgia

Heat Problems in Athletes
Charlie Martin, Northeast Louisiana

Relationship between Men's & Women's Programs
Sherry Buickel, Florida

High School Training
Wayne Rideout, Texas

TUESDAY AFTERNOON

Electro-Therapeutic Modalities
Jack Redgren, Nashville, Tennessee

Surprise Topic
Jerry Rhea, Atlanta, Georgia

25 Years with the Bear
Jim Goosetree, Alabama

Special Olympic Involvement by ATC
John Anderson, Louisiana

Anorexia and the Athlete
Anita Wheeler, Oklahoma

Free Communications

WEDNESDAY MORNING

Athletic Training in the Far East
Glenn J. Meidl, Arabian Gulf

Athletic Training in Europe
Bob Reese, New York

Licensure Update
Bob Behnke, Indiana State

San Antonio Preview

TENTATIVE SPOUSE'S PROGRAM
Nashville, Tennessee

SUNDAY, JUNE 10th ($15.00 fee)

Aerobic Dance for Conditioning

MONDAY, JUNE 11th

Recognition of Drug and Alcohol Abuse

Stress - How to Cope

TUESDAY, JUNE 12th

Color, Clothing and You

Athletics and the Home - Panel Discussion

Desire more information about Nashville at this time? Please contact:

The Nashville Chamber of Commerce
161 4th Ave. North
Nashville, Tennessee 37219

BRINGING A CHILD

— little ones are welcome also. The Opryland will provide you with a crib, free of charge, if you desire.
BABYSITTING — We have lined up a babysitting service for this convention. More details later.
FREE — For banquet ticket holders, a free "group" babysitting will be offered for children from 3 months to 13 years of age. Each of the counselors will be bonded and licensed and most will be school teachers. More details later.

CAMPING AT THE CONVENTION

Nashville offers many campgrounds but three are located within two miles of The Opryland Hotel. These campgrounds are located on Music Valley Drive, Nashville, Tennessee 37214 and offer special services for their guests. They will be more than happy to mail descriptive information about their fees and services, however they did stress advance reservations due to Fan Fair Week and vacationing travelers.

Nashville KOA, Inc.
615-889-0282

Two Rivers Campground
615-883-8559

Holiday Travel Park
615-889-4225

TRAVELING BY AIR

Nashville is served by 12 major airlines offering more than 200 flights per day. FREE — The Opryland Hotel offers free limousine service - just look for their bus.

FOR THE SPOUSE

This year the convention will offer a program for spouses on Sunday afternoon plus Monday and Tuesday mornings. See the program for more details. Monday and Tuesday afternoon, the convention plans to provide a bus to a historical site, shopping mall, or museum. Look for more details later.

COMPETITIVE EXERCISE

A fun run, golf tournament and tennis tournament are in the planning stage for the 1984 convention. Interested? We would like to know. Please contact Mayfield Armstrong and express your interest or to secure more information.

Mr. Mayfield Armstrong
P.O. Box 2032
Nicholls State University
Athletic Department
Thibodaux, Louisianna 70310

TRAVELING BY LAND TO TENNESSEE

— free or valet parking at The Opryland Hotel.
Three major interstate highways converge at Nashville. Some sites you may want to see on your way in or out of Nashville: **Memphis Area** - Graceland, Mud Island, Peabody Hotel, **Hurricane Mills** — Loretta Lynn's home, campground, dude ranch and museum, **Oak Ridge Area** — Atomic Energy Birthplace, **Chattanooga Area** —Lookout Mountain, Rock City, **Gatlinburg Area** — The Great Smokey Mountains - The highest attended National Park.
Tennessee is a vacationer's paradise —offering something for all. For more information about Tennessee contact:
Tennessee Department of Tourist Development, P.O. Box 23170, Nashville, Tennessee 37202

BEWARE — Tennessee has a tough drinking and driving law. Among other things, a 48 hour jail sentence for first time offenders.

PRICE RE—CAP
(Approximate Cost)

REGISTRATION	Pre-Registration for Members (material to follow will include hotel cost)	$70.00
	On-Site Registration for members	$80.00
	Pre-Registration for Students	$40.00
	Non-Members	$150.00
COURSES	Sunday morning — 9:00 am to 12:00 noon	
	Professional Education	$15.00 each
	Schering	FREE
OTHER	Banquet (includes entertainment and dance)	$22.50 per ticket
	Opry Land tickets for 2 consecutive days	$14.40
	Grand Ole Opry tickets	$7.00 per ticket
	Bus transportation between hotels	FREE

SHVILLE, TENNESSEE

Association Activities

David G. Yeo, DPE, ATC
Montgomery County Community College

The National Federation Interscholastic Officials Association (NFIOA) and the National Federation Interscholastic Coaches Association (NFICA) recently selected Joe Gieck and Vito Recine as among their recipients of the organizations' 1983 Distinguished Contributors Award. The Contributors categories recognize committed individuals in professional groups, such as sports medicine, which are critical to the success of high school sports.

Joe Gieck is the Curriculum Director and Head Athletic Trainer at the University of Virginia, Charlottesville. Throughout his 22-year affiliation with the Cavalier athletic program, he has also devoted his time and efforts to the Virginia High School League, its schools, coaches, and athletes. Dr. Gieck directs a continuing education program at Virginia for secondary school faculty interested in athletic training in high schools. He is the curriculum director of the University's Master's program in athletic training, was honored in 1979 by NATA as Trainer-of-the-Year in college athletics, and has published numerous articles. Gieck joined the Virginia staff in 1962 after serving one year as assistant trainer at the U.S. Military Academy at West Point.

Vito Recine has been the head trainer at Sayreville War Memorial High School in Parlin, N.J. for the past 21 years, having previously served 18 years as trainer at New Brunswick High School. A registered physical therapist, his service to New Jersey high school athletics also includes duty as trainer for the state track meet during the past 11 years, as well as for state championship football and soccer events. Racine has contributed as trainer at the Olympic Training Center, the National Sports Festival, and the U.S. Boxing Team World Cup. He was inducted into the NATA Hall of Fame in 1976, and has been honored by the US Olympic Committee and the NJ Interscholastic Coaches Association.

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The American College of Sports Medicine, through a grant from the Lilly Foundation, has identified over 90 organizations which fit into the broad area of "Sports Medicine." The following eight organizations have been invited to a meeting in April to share ideas, concerns, and goals:

NATA - National Athletic Trainers Association
AAHPERD - American Alliance for Health, Physical Education, Recreation, & Dance
ACSM - American College of Sports Medicine
AOSSM - American Orthopedic Society for Sports Medicine
NFSHA - National Federation of State High School Associations
NCAA - National Collegiate Athletic Association
PCPFS - President's Council on Physical Fitness and Sports
USOC - United States Olympic Committee

In District 2, the Pennsylvania Athletic Trainers' Society is working with the Pennsylvania Interscholastic Athletic Association in developing statewide programs on athletic conditioning and prevention of injuries. Interested certified trainers will be presenting workshops to high school coaches and serving as trainers at state level competitions.

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DO YOU REMEMBER THE WAY IT WAS IN NATA HISTORY?

40 Years Ago: Spring - Summer, 1944

. . . . An attempt was made during these early years to organize a national association for athletic trainers. In this year the organization failed. The only success was the collection of dues. The Secretary-Treasurer was Bill Frey, Iowa City, Iowa.

30 Years Ago: Spring - Summer, 1954

. . . . The fifth annual NATA Convention was held in June, 1954 in the Little Theatre in Kansas City . . . . Treasurer's report was given and the balance on hand was $1,274.73.

20 Years Ago: Spring - Summer, 1964

. . . . The fifteenth NATA Convention was held in Palo Alto, California . . . . A study was conducted by William Newell and Roger Johnson on the "Assessment of the Duties and Responsibilities of Athletic Trainer in the NATA" . . . . it was found that the mean age of athletic trainers was 31-40 years.

10 Years Ago: Spring - Summer, 1974

. . . . The 25th Anniversary of the NATA was held at the Crown Center Hotel in Kansas City . . . . Frank George became the new president . . . . The Great Cramer Chuck Wagon Barbeque.

The NATA is very proud and pleased to identify its members who became certified within the last year. Congratulations and best wishes are extended to all.

Members Certified in 1983

District I

Katherine Anagnostis
Leanne Apfelbeck
Steven Buscone
Katherine A. Cargill
Barbara J. Cochran
Karin Damon
Kathy Davis
Steven F. Denny
Christina M. Dolcino
Lauren M. Elliot
Jeremiah T. Foster
Joseph Fountain
Jean M. Fruh
Gary Geissler
Sharon M. Henry
Bonnie Hodges
Bruce A. Jacobsen
Kathryn Ann Josefow
Richard Kaplan
Elizabeth Kreuter
Edward J. Lacerte
David H. Lancaster
Cathleen Lapore
Maryann Laska
Kimberly Sue Lettner
Loretta Anne MacLeod
Patrick S. McCarthy
Nicholas J. Mitropoulos
Elaine Montgomery
Diane M. Nakashian
Laurie R. Nash
Lori L. Parsons-Warner
Linda Polcyn
Douglas W. Preston
Dana W. Putnam
John H. Redlitz
Walter F. Reiser
Gary N. Rizza
Kurt J. Rodenhizer
Wayne Rodriques
Keith Scarlett
Rebecca E. Snow
Richard Stieglitz
Michael F. Trainor
Bonnie Jo Voye
Mariann Walz
Melissa Wolff

District II

Meredith M. Adelfio
Jon Amquist
Brad M. Altland
Mark Anderson
Cynthia A. Arman
Donna Astion
Karen Bath
James A. Beckman
Farica Rivman Bialstock
Robert G. Baughman
Debra L. Baumgartner
Susan Boguski
Martin Brea
Henry T. Bream III
Duane Brida
Todd M. Brutto
Kathleen M. Burns
David J. Caplin
Theresa M. Cappelli
Robert P. Congdon
Susan E. Crooks
Carrie L. Cuthbert
Mary M. Davenport
Anthony S. Decker
Susan M. Decker
Leigh Ann Dinkler
Sandra Eskenazi
Gil Etheridge
Eugene Finn
Karen J. Freeman
Cathy A. Gilberto
Judith L. Gimble
Carolyn Goeckel
Mark Grothman
Beverly Longhouse Hartz
Susan D. Hargis
Leif Hasselquiest
John M. Hauth
John W. Herr
Robert D. Howard
Lynne M. Huber
Vincent J. Hudson
Joseph Ingemi, Jr.
Robert G. Kelly
Kevin Kennedy
Linda Kobilis
Peter Kolb
Michael G. Konoza
Kathryn A. Koshansky
Lee Kuntz
Andy Loscalzo
James F. Malseed
William C. Martin
Jean Ann McConnell
Brett D. McCormick
Michele McCormick
Richard L. Meeks, Jr.
John J. Miller III
Bradford K. Mitchell
Linda K. Mitchell
Julie A. Moyer
Melody Muller
Eric Novicki
Glenn Pepe
Jeffrey L. Pierce
Linda Platt
Karen Posillipo
Joseph Przytula, Jr.
Daniel J. Quigley
Julie Ann Ramsey
Richard L. Raszewski
John W. Records
Vanessa J. Rice
Joseph P. Rieman
Kenneth J. Rogers
Matthew Saltarelli
Paula G. Sammarone
Carolyn Sarson
Robert J. Sauers
Daniel R. Sedory
Diman T. Smith
Jill P. Snyder
Laura M. Stevens
Russell G. Steves
Anne C. Sullivan
Katrina Sullivan
Thomas Suspenski
Brian J. Toy
Steve E. Tripp
Terry R. Ventresca
David Vignola
Loretta M. Volpe
Virginia L. Watkins
Charles I. Whedon, Jr.
Bruce H. Willoughby
David Wolfanger
John R. Worley
James E. Zumbo

District III

Scott M. Applegate
Robert S. Bartoshesky
Robert J. Blazer
Brenda C. Benjamin
Joseph A. Beckett
Donna B. Bernhardt
Hubert G. Brooks
Beverly A. Brown
Richard H. Bullard, Jr.
John M. Burney
Peter Chacalos
Jennifer H. Dean
Susan M. Evanko
Lynn Carol Evans
Warren D. Franke
Craig J. Franz
Michael T. Gross
Lisa L. Grubb
David A. Hammer
Michael J. Hanley
Deborah J. Harned
Craig Harwood
Richard Y. Hinton
Danny Holt
Charles D. Huffman
Bradley R. Jacobson
David F. Kroll
Paul L. Lysher
Lisa Marker
Michael L. Matheny
Antoinette McBride
Robert L. Merrow, Jr.
Heidi S. Miles
Joseph P. Palermo
Frederick M. Phelps
Luigi F. Rende
Peter F. Sauer
William F. Saylor
Joe A. Starcher
Charles A. Starkey
John P. Thomas
Jill Van Dorpe
Arthur W. Williamson
Kyle S. Wilson

District IV

Kathy E. Abel
John P. Accrocco
Cynthia L. Allen
Ruben R. Arjona
Andrea L. Arthur
Judith Badgley
William D. Bandy
Linda Sue Baumgartner
Richard A. Bowers
Dale R. Burkhouse
Bonnie Lee Caldwell
Robert Carpenter
Mary E. Cestone
Myra L. Chakroff
Peter B. Chase
Lynn M. Clement
Lee J. Cohen
Terry Collins
Brett C. Cope
Deborah deMoulpied
Kimberly R. Doane
Paul R. Duxbury
Emmanuel H. Economos
Nora V. Eichvalds
Dorai Neilson Empie
Patrick A. Favazza
Mary M. Fish
Rebecca Frasier
Lorraine M. Fritsch
Dennis C. Fyke
Mary C. Gavin
Leigh N. Gentz
April Gerard
Michael J. Gilmartin
Sylvia M. Goodman
Peter W. Gyllenhaal
Susan Kircher Hageman
Jeanette K. Hathaway
Randy Henkels
Marcia R. Hill
Wesley W. Howe
Susan A. Kaplan
Patrick B. Karns
Harmon A. Katz
Lloyd R. Kieft
Michael E. Klaus
Kim K. Kostron
Oscar Krieger
Kathleen A. Kunz
Violet LeClair
Karen Leigh
Thomas J. Loew
Becky Lolis
Cheryl Lonsdale
Jacqueline E. Lopez
Greg D. Meredith
Mark Middlesworth
Brad Alan Mishler
Chris A. Moser
Robert Moss
Nancy Mulcahy
Monica Mulholland
Kathleen A. Murphy
Virginia A. Noblet
Thomas G. O'Connell
Jeff Oliphant
Kathleen D. Osborne
David G. Powell
Thomas Probst
Anthony Prusa
Michael A. Ramaeker
R. Scott Reynolds
Mary J. Rinehart
John W. Robinson
John P. Rock
Paul W. Schmidt
Lynn E. Roberts
Joann L. Schonning
Michael J. Scianni
Paul H. Seymour
Neil F. Skalitzky
Rae Jean Soard
Margaret Steinhilper
David Surprenant
Leigh Ann Thome
Kent Timm
Stephen R. Tippett
Mark A. Tudor
Sandra Ugi
Gerry Van Dyke
Paul K. Walnum
Suzan Bott Westegard
Jeffrey A. Will
Richard Wisz, Jr.
Joan S. Wood
William Woodall
Philip C. Zinni III

District V

Mary Jo Bamford
Ann Elizabeth Bartels
Linda Kay Beil
Kennard D. Black
Joan Brockhaus
Julie Bruns
Jeffrey L. Chambers
Ruth E. Cook
Marchelle M. Cuppett
Ron DuBuque
Deborah L. Engle
Paul E. Flynn
David J. Fraser
Karl R. Glick, Jr.
Ronnie D. Hald
Mark G. Haynes
Jean Hobbs
Tammy K. Inglehart
Andrew J. Kerk
Anthony G. Koch
Laurie M. Kroupa
Cheryl Lindly
Pamela Lund
Jamy Nuttall
Eric B. Polson
Richard G. Redhair
Sue Ann Reynolds
David L. Ruthsatz
Bruce Schellhammer
Rhonda J. Shriver
Karen L. Sloan
Paula M. Sloat
Loreen M. Stringer
Todd E. Walstead
Kandice M. Zakarian

District VI

Terry A. Bunker
Barbara A. Heck
Larry W. Hunka
Linda Sue Jackson
John W. Ransome
Jeffrey A. Russell
Michael R. Sims
Roger W. Stahle
David Stickelbault
James J. Walker
Thomas Washington

District VII

Timothy Acklin
Patty Curtiss
Jan Watts Davis
Christy L. Edwards
Elizabeth E. Ekdale
Marlin M. Forseth
Sandra Prinster Griffen
David A. Harberson
Anthony J. Harris
Mark P. Hogan
David L. Labossiere
Jim Manzara
Jonathan S. Straker
Chris S. Tucker
Garve E. Walker
Matt J. Webber
Duane L. Wieding
Michael Yacullo
Charles M. Zach

District VIII

Cathy Ames
Jeri Burner
Linda Rae Buttles
Christopher Cate
Deborah J. Crozier
Lisa Davenport
Laurie Eccelston-Nordgaard
Aura R. Finehold
Dick Gin
Diane Handa
Jeffrey M. Henderson
James A. Herkimer
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Trainer Malpractice: A Sleeping Giant

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During a football game, a young athlete tackles an opponent by the "facemask-in-the-numbers" method. The boy presents no obvious symptoms on the field, but does express that he has severe neck pain. Sensory and motor function are intact. The coach suspects a neck injury. The player is carried off the field by eight of his teammates. Evaluation on the sidelines reveals paralysis from the neck down.

After the initial shock has passed, the questions begin to surface. Who is responsible for the youngster's condition? Did the people responsible act in the appropriate manner? Could the untimely end of the athlete's career have been prevented? Who can be sued? The same types of questions can be asked in the case of someone who dies as a result of injury suffered during athletic participation or under any circumstances.

The next important inquiries to make are: 1) where does the athletic trainer fit into the scheme of the school and the health professions, and 2) what is the trainer's role in the care of an athlete? The legally precarious position of trainers makes them more vulnerable to the possibility of being sued. Adding to that, their roles of teacher and/or coach compounds the grounds for which legal action may be initiated.

When an athlete suffers an injury that results in death or disability, the individual or the parents of the athlete may attempt to gain monetary reparations for damages. Damages include payment of medical expenses, mental anguish, loss of earnings, home modifications, on-going medical care, pain and suffering. As can be expected, suits can result in judgements or settlements against defendants for great sums of money, depending on the extent of the disability that was caused by the wrongdoings of any or all of the defendants. The monetary reward is to compensate adequately for the losses due to the person's injury.

A survey of recent litigation and current trends in sports law exposes the need for the athletic trainer to become aware of the variety of situations that may lead to legal action. The athletic trainer is becoming a highly visible person, both on and off the field. The trainer has far more education, experience and expertise is sports medicine and safety than the coaching staff and school administrators. Consequently he/she may be held to a higher standard of care than others in case of an injury arising out of 1) inadequate equipment and improper protection of injured players, 2) premature return of injured players to active sports, 3) unsafe playing conditions, 4) improper transportation of injured players, or 5) improper treatment of athletic medical emergencies and other injuries. The sleeping giant—trainer malpractice litigation—is about to awaken. This article will forearm trainers and related sports medicine personnel by forewarning them about trainer malpractice.

Trends of the Past Decade

In 1973, the Athletic Care Act was introduced in the U.S. House of Representatives. The proposal required that a certified athletic trainer be hired by all secondary schools and colleges that sponsor interscholastic athletic competition within eight years of the bill's passage. The athletic trainer had to be deemed qualified "to carry out the practice of prevention, care, and/or physical rehabilitation of injuries incurred by athletes." This statement implied that the trainer could legally incorporate modalities such as heat, cold, sound, or electrical stimulation into a treatment program. The persons eligible for certification were to fall under the guidelines of certification already established by the National Athletic Trainers Association, Inc. A previously NATA certified trainer in good standing would also have been eligible for national certification (1).

The purpose of enacting such a bill was to reduce the number of injuries associated with athletics. During the 1970's, the number of injuries was reaching an alarming high. Those in support of the proposal believed that the use of qualified athletic trainers would reduce the number and severity of injuries suffered by athletes.

Presence of Trainers Studied

Although the Athletic Care Act had a high level of public support, the bill did not pass. The House stated that there was not enough evidence available to support

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the theory that the employment of trainers would substantially decrease the number of injuries. To investigate the issue the Department of Health, Education and Welfare was mandated to conduct a twelve month study to determine the number of injuries and their severity, the number of deaths attributable to athletic activities, and the presence of a qualified health person at the time of injury. The survey was conducted in the academic year of 1975-1976.

The report, entitled "Athletic Injuries and Deaths in Secondary Schools and Colleges: 1975-1976," was presented in February of 1979 (2). The publication was somewhat inadequate and vague in that it did not directly address the question at hand. The data considered a "trainer" or "health person" to include NATA certified trainers, coaches that assumed emergency care, teachers, and student trainers. Obviously, not all these people are capable of providing the standard of care of an NATA approved trainer. Less than half of the schools had NATA certified trainers. The majority of certified trainers were found at the college level.

The survey went on to point out that there were greater than one million injuries including one hundred thousand major injuries and fourteen deaths. Women incurred sixteen percent of the injuries. There were four times as many injuries in varsity football as in all non-contact sports combined (2).

Lack of Qualified Trainers Shown

The lack of qualified trainers was clearly demonstrated by the statistics. The report also stated that school systems could not afford to hire a qualified athletic trainer due to the shortage of funds in education. Furthermore, even if an athletic trainer were hired, there would be inadequate coverage for all sports with only one trainer available (2). The major thrust in the field of education at the time was compliance with the conditions of Title IX. Money was being put into athletic programs to improve the status of women's athletics. What the survey failed to acknowledge was that there would most likely be an increase in the number of injuries due to the influx of more athletic participants in the expanded programs. The low salary levels of trainers would also be a discouraging factor to people considering whether to continue or seek employment in the profession.

During this time, the National Athletic Injury/Illness Reporting System (NAIRS) results indicated that there was a lower percentage of injuries with an increased number of participants. The reduction was attributed to the use of improved equipment and the presence of athletic trainers that were introducing better conditioning methods and ways of preventing injuries. The NAIRS data supported the need for the employment of qualified athletic trainers (3).

A longitudinal study conducted by the North Carolina Sports Medicine Department also indicated that the use of trainers or teachers who took courses in the prevention and care of athletic injuries significantly reduced the injury and re-injury rates over a six year span. The initial survey conducted in 1972 showed that in the vast majority of situations the coach was responsible for the care of the athlete. By 1978, the teacher/trainer was responsible for the care and prevention of injuries. The injury rate between the two surveys dropped from fifty percent in 1972 to twenty-two percent in 1978. The re-injury rate also dropped significantly from seventy-one percent to eleven percent (4).

State Licensure Is Desirable

With the demonstrable need for qualified athletic trainers, a desirable route to undertake for regulation of the practice of athletic training is state licensure. In the last several years, the NATA and state associations of athletic trainers have been attempting to implement licensure laws or regulations. By 1982, the only states successful in enacting licensure laws or regulations were Georgia, Kentucky, Texas, and Oklahoma. Several other states are debating the issue, including Pennsylvania, New Jersey, North Carolina, New York, and Virginia.

(**Editor's Note:** At the end of 1983 states with licensure were Georgia, Kentucky, Massachusetts, Missouri, New Mexico, North Dakota, Oklahoma, Rhode Island, Texas and South Carolina.)

The legal definition and qualifications for licensure as an athletic trainer in Georgia appears to be typical of the states with licensure laws or regulations. The trainer acts on the "advice and consent of his team physician [and] carries out the practice of prevention or physical rehabilitation, or both, of injuries incurred by the athlete." The definition states further that "carrying out these functions, the athletic trainer is authorized to use physical modalities, such as heat, light, sound, cold, electricity, or mechanical devices related to rehabilitation and treatment."

Only a licensed trainer may perform services for compensation. A trainer is eligible for a license through an approved curriculum with proof of graduation, or as a physical therapist with basic athletic training courses and two years experience under a qualified trainer, or as an apprentice after four years under the supervision of a qualified trainer. The applicant must also pass a test similar to the NATA certification examination. The licensed trainers are governed and supervised by a Board. Practicing athletic training without a license is a criminal offense in Georgia (5).

The NATA recently became a member of the National Commission for Health Care Agencies that prescribes the standards of care for the health and allied health professions. Recognition by this group is an acknowledgement that athletic training is a health profession. The road to licensure may be made easier by having this group's acceptance. In the case of legal action, the licensed trainer would thus have a basis for determining standards of care for what is considered prudent for athletic training.

Who Can Be Sued?

In the past decade, there has been a number of suits being filed concerning athletic injuries. The numbers will continue to grow as public awareness of the roles of the athletic trainer and team physician increases, and as the number of sports participants continues to climb. At this time, the legal liability of private and public schools is being tested in the courts and modified by legislation. Depending on the state involved, because of sovereign immunity, a public or state school may be immune to being sued without the permission of the state, which is given by statute of state constitution, if at all. If the sovereign immunity laws are further relaxed, an additional rise in litigation will be evident.

The grounds for legal action involve torts (legal wrongs) or breach of contract claims. The tort most frequently charged is negligence. Negligence implies that the person did not act in a manner prudent to his profession. Negligence may come about either through acts of omission or commission. An act of omission is not performing some act which you should in the exercise of reasonable care. An act of commission means

doing something which you should not do in the exercise of reasonable care, frequently because it is beyond your training, qualifications or experience.

Generally, for a negligence lawsuit to be maintained successfully, the defendants must have either an expressed or implied duty to the plaintiff party filing the suit, there must be a breach of that duty, the actions of the defendants must be shown to be the proximate cause of the injury or other loss, and the plaintiff must show that he has been damaged (injured). Without all these components, a negligence lawsuit cannot be successful.

The Duty of the School

The school and its governmental parent owe the athlete adequate instruction and proper equipment that is correctly fitted. Along health-oriented lines, the school should provide physical examinations to determine preaseason fitness to play, supervision to avoid potentially dangerous conditions, proper conditioning, and post-injury treatment to prevent further injury and premature return to activity. The institution fulfills these responsiblities by hiring qualified coaches, athletic trainers, teachers, and team physicians. In addition, the school must purchase safe equipment and maintain indoor and outdoor facilities within safety guidelines. Since the responsibility is delegated to a variety of school staff, many people can be implicated for some type of legal wrong in the event of legal action (1).

Law Suits Can Target the Trainer

In order to tap as many financial resources as possible, a suit will usually name several people and/or institutions as defendants. The individuals that can be involved when an accident or injury occurs at an athletic event include the coach, the athletic trainer, the team physician, the school nurse/infirmary staff, the officials, the first aid squad, the athletic director, the principal, the superintendent, the equipment manager, and the custodial staff. Other major organizations would include the product manufacturer, the Board of Education, College or University or the school district. The prime candidates that would pay damages are the physician, product manufacturer, and the school district, since they have the most monetary resources available. Judgements may be entered against any or all the defendants in the suit that would award a money judgement for whatever the judge and jury deem reasonable compensation for the damages suffered.

In reality, the chance of being involved in a lawsuit related to athletic injury is small. However, a judgement for damages from one case is enough to cause a financial disaster to the athletic trainer. The monetary recovery available from the athletic trainer is not as strong a motivation for legal action as that available from a physician. However, the trainer is likely to be sued along with the school district and team physician. As the public becomes more aware of the role of athletic training, there will probably be an increase in the number of suits being filed.

Trainers Have Many Responsibilities

Young athletes seem to believe themselves to be unsusceptible to injury and virtually immortal. By participating in any sporting activity, the athlete assumes a degree of risk of injury. The athlete is aware of the types of injuries that may be incurred in association with his particular sport. However, a failure to warn an athlete and disclose the risks involved with participation may lead to legal action. This is especially true as serious injuries and possible permanent disabilities and death may occur in sports.

The athletic trainer has a responsibility for the physical condition of an athlete. The trainer may be negligent if the athlete has a predisposition to injury that is known by the medical staff, but not known by the athlete. Negligence is a possibility when an obvious condition or significant item of medical history is missed during preseason physicals and screening. The trainer is to monitor the temperature and humidity during practice sessions in warm weather. Both the trainer and coach have a responsibility to prevent heat illnesses. Frequent water breaks and unrestricted water intake are essential. If adverse conditions exist, the trainer should advise the coach to alter the intensity of activity and/or the type of clothing worn by the athletes.

Foreseeability of injury or hazard (i.e., circumstances which cause a prudent trainer to realize that an injury or hazard is likely to occur) is another consideration in determining legal liability for an injury. Many responsibilities and duties of an athletic trainer require foresight. A predisposing condition foreseeably could lead to injuries of varying degrees, some resulting in permanent disabilities. Field conditions might foreseeably increase the chance of injury. A lack of proper and adequate equipment, such as throat protectors for goalies or padding on goalposts, can also lead to injury. The trainer, along with the equipment manager, must take responsibility for the equipment used by the athlete.

The trainer may be liable if the fitting of equipment is not supervised, resulting in injury from a poorly fitting piece of equipment. The trainer may be negligent if he does not warn the coach of mismatched competition. The size and skill of a large, older team can cause injury to a team of much smaller stature and skill.

The trainer is negligent in his actions when he fails to recognize an injury or refer the athlete to a physician when the condition warrants such attention. If the trainer allows the premature return of an athlete to activity and injury results, the trainer may be found negligent and liable. Transfer of an injured player from the field to the sidelines is often the responsibility of the trainer. Improper transfer techniques can have dire consequences as in the case of head and spinal injuries. The trainer may be liable, if he takes part in or supervises an improper transfer, or if he fails to assure a proper transfer. Failure to check periodically the integrity of the blood and nerve supply to an extremity after the application of a splint is another possible source of legal action.

Lack of supervision of the training room and student trainers can result in a lawsuit. If the student trainer oversteps his bounds and injury results because of his action, the supervising trainer may be sued on the grounds of vicarious liability. Student trainers should not be given more responsibility than they can handle. In other words, the athletic trainer is responsible for the actions of his/her staff.

Other areas of possible litigation exist that are not peculiar to the medical professions. The trainer can be sued for breach of contract or file suit against his employer for the same reason. Of course, the trainer is not allowed to perform unauthorized experimentation on athletes. Discrimination, either racial or sexual, may be the basis of a lawsuit. The trainer must be aware of what he says about athletes, coaches, or other contacts in order to avoid claims of slander or libel.

Preventative Measures

Several possible sources for legal action have been

presented. The purpose of this article is to increase the awareness of athletic trainers, not cause panic. By knowing what areas of responsibility can the be the root of a legal question, the trainer can take steps to protect himself.

Licensure at the state level would greatly strengthen the legal basis of practicing athletic training. As more states adopt the licensing procedures, the legal question of athletic trainers practicing physical therapy without a license will become less controversial.

Although licensure will reduce the trainer's risk of being accused of practicing without a license, there is no guarantee that litigation for negligence and other forms of liability will not occur. One must keep in mind that the athletic trainer's responsibilities for prevention and treatment of injuries is limited to athletes and must be approved by the team physician. As the profession of athletic training and the role of the team physician become better defined, the standard of care provided to athletes may actually be greater, since there is some expertise implied in recognition of a person as a professional in the care of athletic injuries.

Accurate records are a necessity for the smooth operation of a training room. The records should include the athlete's name, the nature of the injury, and any pertinent comments. A daily log of treatments, with monthly summaries, is a good system. The log serves many functions. Records enable the trainer to substantiate the need for equipment and supplies. Reports of injury can be used as evidence for the actions taken by the training staff during the course of treatment. Such a log allows the team physician or head trainer to supervise the training staff. A copy of all correspondence should be kept on file.

Gabriel suggests an injury report/accident form that states the injury, the initial care, evaluation or clinical impressions (not diagnosis), any recommendations for home care, and referral with the signature of the athlete and the trainer. Copies should be kept in the student's file, the athletic training files, the school infirmary, and the school district office. A physician's report and the prescription for treatment, as well as release forms, should be kept on file by the athletic trainer, the physician, and the school infirmary. A reporting system of this nature provides documentation of the total course of an injury (4).

The trainer should refer all athletes to the appropriate physician, if the condition deserves medical attention. When a condition requires the attention of a specialist, the appropriate doctor should see the athlete. Referrals should be made any time the trainer is unsure of the extent of an injury or the nature of the injury. The trainer must stay within the limits of his knowledge and fields of expertise. Overstepping the bounds of one's limitations can lead to errors and the possibility of serious injury or permanent disability for the athlete. In short, do no harm in athletic health care.

Trainers can further protect themselves by having a written contract with his/her employer. The contract should state exactly what the responsibilities and duties of the position are, including a job description. The populations the trainer is required and allowed to treat should be clearly defined and procedures for referring those not under his/her care should be established. Guidelines for what the trainer can and can not do should be outlined. The status of the trainer on the staff, either part time or full time, often determines the extent of insurance coverage. The trainer should inquire if there is coverage for negligence and liability under the school's insurance policies. The trainer should purchase liability insurance available through the National Athletic Trainers Association, Inc. The employer is sometimes willing to pay the cost for such insurance. Transportation insurance coverage should also be available as a rider on the school's policy for trainers driving athletes in private vehicles.

Continuing education is a necessary form of protection from legal action. The trainer should be up-to-date with the current state of the art and science of athletic training. Seminars and conferences are excellent ways to learn current information. The trainer must maintain current cardiopulmonary resuscitation (CPR) and first aid certification.

Communication is probably the one area in which the athletic trainer can do the most to protect himself. The trainer acts as a liaison between the athlete, coach, and parents. A good rapport with all the people with whom the trainer associates within his/her professional duties is essential.

The trainer should also avoid off-the-cuff remarks which can often be misunderstood. Giving advice over the telephone should be limited to stopgap advice until the patient can be seen by the trainer or a physician, and the need for prompt examination should be emphasized.

The reputation of the trainer and the quality of relationships with the people involved have a great influence on whether the trainer becomes a target defendant. If the trainer is respected, the chances of being sued are reduced.

The trainer must also win the trust and confidence of the coaches and athletes. Someone who is not content with how he was treated is more apt to file suit no matter the result. If a good relationship does not exist, the health of the athlete may be endangered because he may not seek the help of the trainer or uninformed persons may refer him to inappropriate sources of aid. Being on good terms with the parents is also important. After all, they are more likely to initiate legal action, than the athlete himself. Relationships between the athletic department administration, the custodial staff, and the school's health care personnel are important. Good public relations discourage legal action.

A working understanding between the team physician and the athletic trainer of their respective roles and responsibilities for athlete health care is essential. When first entering a new employment situation, establish basic guidelines for treatments, referrals, and emergency procedures. The actions of the various members of the health care team are to complement each other. By prescribing roles and responsibilities of the trainers, physician, nurse, or infirmary staff, emergencies or other incidents will be less likely to cause difficulty, and can be handled smoothly and efficiently.

Treatments given must be within the realm of the qualifications of the trainer, and must be given properly. The athletic trainer must possess the qualifications necessary to supervise a staff and the operation of a training facility. Treatments must be administered with the proper protocol and must be supervised. Student trainers should handle only the responsibilities given to them.

The training room should never be unattended. Equipment in uninformed hands can cause serious injury. The equipment itself must be in good working order. All electrical modalities must be connected to a ground fault circuit breaker to avoid electrical shock.

A sound relationship between the athlete and the trainer generates trust and lays the groundwork for successful rehabilitation. The athlete's wellbeing is the trainer's primary concern. When an athlete is injured, the trainer is usually the initial contact for the first aid, referral, and subsequent rehabilitation. The trainer

should be as honest as possible about the athlete's condition and should not be afraid to say that he or she does not know. Written instructions for home care and rehabilitation procedures should be given to the athlete to establish guidelines of treatment and procedure and to chart progress.

The trainer should not imply or give a guarantee of full recovery or a definite date of return. Rather, the trainer should provide a series of goals of rehabilitation and criteria for return to activity. General timetables can be given, but the trainer should emphasize that the return to activity is dependent on the time of the healing process and the athlete's hard work. A doctor's release is required for the return to activity by an athlete under his care. If the athlete is a minor, treatment measures beyond first aid should be avoided without parental consent.

A preseason physical examination is essential for athletic participation. The trainer helps establish the screening procedures and health history forms. The history forms should be kept up-to-date and on file. Informed consent should be obtained from the athlete and parent, in the case of a minor. The sport in which the athlete will participate should be indicated. The physician's consent should also be given. Noninsurable conditions and disqualifying conditions should be found as part of the screening procedure. Athletes who have joint laxity, lack of flexibility, or any other factor predisposing them to injury should be informed and a rehabilitation program established.

The use of equipment and the safety of athletes on the field are partly the responsibility of the trainer. Defective equipment must not be used until fixed or replaced. Equipment is only to be altered within regulations. The athletes are to read and be instructed on the warning labels on football helmets. The equipment used must provide adequate protection for the sport. Players should be warned of potential dangers in their particular sports. The trainer should notify the appropriate authority when areas of potential injury are identified. If the trainer cannot fix the problem, someone who can fix it should be informed. The coach should be told if improper techniques are being used or taught. The importance of exercising tact and diplomacy in this matter cannot be over-emphasized. Pre-season physical fitness tests should be administered to determine potential medical problems. If field conditions are poor, the trainer should advise the groundskeeper to correct the situation. The use of mouth guards and other required equipment should be enforced by the coach and the trainer. For his own protection the trainer should notify coaches and administrators by letter of potentially dangerous situations, with a copy kept by the trainer. In this way the trainer has a record of his/her efforts to identify and eliminate hazards.

Written instructions, guidelines and policies for training personnel, coaching personnel and student athletes are preventative measures which are easy and inexpensive to produce and implement. They have several very beneficial effects:

1. They require the coaching staff, training staff or administrative staff to discipline themselves into a thorough research of the safety rules which should be enforced, in order to create the written documents. The documents can be reviewed by attorneys for the school district, university, or individual staff members for legal sufficiency. They can also be circulated to national organizations, university physical education departments, medical school departments and other expert agencies for comment and supplementation.

2. By having the safety rules in writing, the staff and student athletes will not only be given fair notice of what the rules are, but the learning of and commitment to the rules will be substantially enhanced. A written rule has far more impact than some unwritten, unspoken, traditional notion of safe techniques, which may or may not be communicated effectively to all staff or athletes. Weight control and water discipline programs are examples of needed rules.

3. The existence and enforcement of written safety rules which are adequate and complete will give protection to the school, staff and student athletes in the event of an injury and ensuing litigation. Frequently it is a failure to warn, failure to enforce safety regulations or failure to give notice which is alleged as the grounds of negligence upon which liability is based in an injury case. With a written set of safety rules the obligations to inform, enforce and warn can be complied with in a manner which can be clearly proven at a later time. Written copies of the regulations or rules can be signed by each student athlete to reflect the fact that the student has read and understands the rules. In the case of minors, there can be a place for parents to sign, indicating that they have also read and understood the rules, and that they have accepted their commitment to be sure that their son or daughter reads and understands the rules. In addition to having each student and parent sign the rules and regulations, a copy should be provided to them to take home.

Coaching staff members, training staff members and other pertinent officials and agents of the school also should sign a copy of the rules to indicate that they have read them and understood them, and that they are committed to enforcing the rules as a part of their jobs. This will protect the head coach, head trainer and school from claims that they ineffectively advised, supervised and instructed their staff members, thus avoiding vicarious liability on the head coach, head trainer or school.

The issue of "informed consent" arises more and more in fields other than medicine, where it had its genesis. The more obvious potential dangers of playing a contact sport, such as the possibility of having a broken leg or an injured knee while playing football, are not the principal focus of informed consent in the sports arena, although a good informed consent form will cover the obvious dangers. Rather, the focus of informed consent must be on such matters as dangers of using improperly fitting equipment, failing to use proper equipment and failing to follow safety rules.

Finally, the trainer should get to know a good lawyer. He or she should retain a personal lawyer, in addition to the school's lawyer, for advice where there is a conflict between the school's interest and the trainer's interest.

Conclusion

Trainers, due to the nature of their profession, are exposed to a number of potential bases of professional legal liability. Whether a lawsuit is instituted depends on the extent of injury, the provability of negligence and the quality of the trainer's relationship with the injured person. Sound training procedures and techniques can minimize the chances of being found liable for injuries resulting from trainer negligence.

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Editorial, *continued from page 9*

be opened slightly. Even in warm weather people are susceptible to carbon monoxide poisoning, especially when air conditioning is operating.

+ oven and gas ranges should never be used as heat sources. Also, hot water heater burners should be checked annually. The flame should burn blue; a yellow flame means the burner is putting carbon monoxide into the home.

+ care should be taken with hobby equipment that might be kept in the basement or garage. An unvented kiln, or a gas or liquid fuel-burning apparatus may produce a tremendous amount of heat and, thus, reduce oxygen while emitting carbon monoxide.+

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TRAINER MALPRACTICE: A SLEEPING GIANT

Joe Gieck, EdD, ATC, RPT, et al.

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Questions		a	b	c	d	e
1. The athletic trainer may be held to a higher standard of care than the coaching staff in a case of an injury arising out of 1. inadequate equipment and improper protection of injured players 2. premature return of injured players to active sports 3. unsafe playing conditions 4. improper transportation of injured players	a. 1, 2, 3 b. 1, 3 c. 2, 4 d. 4 only e. 1, 2, 3, 4					
2. An athletic trainer may be sued for negligence if he/she attempts to treat an athletic injury for which he/she is unqualified to do so. a. True b. False						
3. If a football coach is being sued by the parents of a player who has been injured during a football game, is the trainer protected from being sued also? a. Yes b. No						
4. It is the athletic trainer's responsibility to monitor the volume of water taken in by athletes during their water breaks. a. True b. False						
5. Properly fitting athletic equipment is the responsibility of the a. equipment manager alone b. athlete c. coach d. trainer and equipment manager						
6. The athletic trainer's responsibilities for prevention and treatment of injuries a. is limited to athletes b. must be approved by the team physician c. both of the above d. none of the above						
7. May an athletic trainer supervising a student trainer be sued if that student commits an act of negligence? a. Yes b. No						

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		a	b	c	d	e
8. Measures which may be preventative against the trainer being found liable for an athlete's injury include 1. licensure at the state level 2. accurate injury records 3. appropriate specialist referrals 4. written job descriptions	a. 1, 2, 3 b. 1, 3 c. 2, 4 d. 4 only e. 1, 2, 3, 4					
9. The athletic trainer must establish good rapport with an athlete's parents as well as the athlete him/herself. a. True b. False						
10. With respect to the athlete's return to activity the trainer should provide the athlete with a. a series of goals of rehabilitation b. criteria for return to activity c. a release for return to activity d. a and b above e. all of the above						
11. Athletes with joint laxity should be informed that they have this abnormality. a. True b. False						
12. The athletic trainer should have a lawyer of his/her own rather than just the school's lawyer. a. True b. False						

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   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.
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   East Lansing, Michigan 48824

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2. All titles should be brief within descriptive limits. The name of the disability treated should be included in the title if it is the relevant factor; if the technique or kind of treatment used is the principal reason for the report, this should be in the title. Often both should appear. Use of subtitles is recommended. Headings and Subheadings are required in the involved report but they are unnecessary in the very short report. Names of patients are not to be used, only first or third person pronouns.
3. An outline of the report should include the following components:
   a. Personal data (age, sex, race, marital status, and occupation when relevant)
   b. Chief complaint
   c. History of present complaint (including symptoms)
   d. Results of physical examination (Example: "Physical findings relevant to the physical therapy program were . . .")
   e. Medical history — surgery, laboratory, exam, etc.
   f. Diagnosis
   g. Treatment and clinical course (rehabilitation until and after return to competition) use charts, graphs when possible
   h. Criteria for return to competition
   i. Deviation from the expected
   j. Results — days missed
4. **Release Form**

   It is mandatory that *Athletic Training* 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.

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Abstracts

John Wells, ATC, PT, PhD
Mars Hill College

"Gastric-emptying characteristics of two glucose polymer-electrolyte solutions," Seiple, SR, et al. *Medicine and Science in Sports and Exercise,* 15:366-369, 1983.

The two primary physiological factors affecting human athletic performance are dehydration and carbohydrate depletion. Rehydration and carbohydrate supplementation with the commercial glucose drinks available currently have practical and theoretical disadvantages. The high osmolality of these products, due to their mono and disaccharide content, delays gastric emptying and slows both rehydration and carbohydrate absorption. The purpose of this study was to compare the gastric emptying characteristics of two glucose/fructose-electrolyte solutions to those of water. Water was chosen for the comparison as it is considered to have the maximum rate of gastric emptying. Six healthy, male college-student volunteers participated in the study. The carbohydrate solutions used were formulated to avoid the gastric-emptying penalty imposed upon hypertonic solutions. Polymerized glucose at levels of 5% and 7% were used to maximize the carbohydrate content while minimizing the osmolality. Two trials were performed per day. Each trial consisted of the ingestion of tests solution or water and the recovery of stomach contents 30 minutes later. The procedure was then repeated with the same test solution or water with a 60 minute interval between ingestion and aspiration. The volumes of fluid emptied at 30 and 60 minutes were not significantly different for water and the two test solutions. It is shown that 5% and 7% solutions containing water, polymerized glucose, fructose, and electrolytes empty from the stomach as quickly as plain water. These findings indicate that up to 70 g. 1-1 of carbohydrate along with trace minerals can be made available to the athlete without compromising rehydration.

D.A. "Bru" Brubaker

* * *

"Pulsing Electromagnetic Field Treatment in Ununited Fractures and Failed Arthrodeses," Bassett, C.A., et al. *The Journal of the American Medical Association* 247:623-628, Feb. 5, 1982.

When a fracture fails to unite, two methods of intervention are available. One is surgical and carries a significant risk; the other, pulsing electromagnetic fields (PEMF) and has negligible risks. Treatment with PEMF is a method for inducing weak electric currents in tissues, utilizing treatment coils placed externally to the body. PEMF is capable of modifying cell behavior so that fibrocartilage in the non-union fracture gap is calcified, vascularized, and replaced by bone. A total of 1,007 cases of ununited fractures and 71 cases of failed arthrodeses were available for final analysis. Of a total of 1,078 patients, 834 healed and 244 failed for an overall success rate of 77%. Failed arthrodeses represented an overall total of 58 successes and 13 failures for a success rate of 82%. Success was more likely in tibial lesions than in femoral lesions, while both were greater than success in lesions of the upper extremities, with the exception of the carpal navicular, where 84% of the fractures united. There was an average of 2.2 failed operations per patient before entering the PEMF programs. The protocol for treatment consisted of seven steps: (1) application of a cast, (2) established interval "driving" voltage for each patient, (3) placement of parallel coils, (4) treatment for 10 to 12 hours daily, (5) strict non-weightbearing during early treatment, (6) roentgenogram assessment monthly, and (7) graded protracted rehabilitation. This study confirms a high level of effectiveness for PEMF in producing union in previously ununited fractures. Success was not affected materially by the procedures, or the presence or absence of infection. Furthermore, almost half of the patients in this analysis were treated by more than 500 orthopedic surgeons who were using this technique for the first time, some with no direct supervision. This indicates that extensive experience with the method is not a major factor in achieving a satisfactory result.

Tim Garl

* * *

"Treatment of Therapeutically Resistant Non-Unions with Bone Grafts and Pulsing Electromagnetic Fields," Bassett, C., et al. *The Journal of Bone and Joint Surgery,* 64A:1214-1220, Oct., 1982

The success rate of electromagnetic methods in healing non-union fractures have been reported from 77 to 92 percent. This procedure provides an alternative to bone-grafting which has a success rate ranging from 85 to 98 percent. It is clear that no matter what therapeutic measure is used to effect union, there is a failure rate of approximately 5 to 10 percent. This study reports on the results of the combined and concomitant use of bone-grafts and pulsing electromagnetic fields as a means to achieve union. Eighty-three patients with a non-union fracture were studied. Patients were treated with bone-grafting and pulsing electromagnetic fields under two formats. In Group A (N=38), all but three patients had conditions when previously contravened the use of electromagnetic fields alone. In this group, the median length of time from fracture until beginning treatment was 16 months. A total of 100 unsuccessful surgical repair attempts had previously occurred in this group. The second format of treatment, Group B (N=45), consisted of concomitant bone-grafting and application of electromagnetic fields to the non-union following previous failure to secure a union with electromagnetic fields alone. The median disability time of this group was 17 months. One hundred and one previous operations had failed to secure union. All patients had a graft with fresh autogenous cortical-cancellous or cancellous iliac bone, except for one patient. The electromagnetic fields were applied to the surface of the cast two to four weeks after the grafting procedure. The basic management program after bone grafting was: 1) ten hours daily of treatment, 2) strict non-weight-bearing, 3) monthly assessment of fracture site with radiographs

and 4) the institution of rehabilitation once early union was established. A non-union was judged healed when there was both clinical and radiographic evidence of union. The success rate was 87 percent in Group A and 93 percent in Group B. The length of time from starting electromagnetic treatment to healing was a median time of four months with a range of two to twelve months. Of the fractures in this study, only 1.5 percent did not unite. The safety of the method continues to be evidenced by a relative lack of complications and the reported success rate in actively infected fractures. Experimental evidence now suggests that improved results can be expected bone-grafting rather than 2 to 4 weeks post-operative.

Tim Garl

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"Physiological Effects of Training in Professional and Recreational Jazz Dancers.", Lavie, J.M. and R.M. Le Be-Neron. *The Journal of Sports Medicine and Physical Fitness.* 22:230. June 1982.

The physiological effects of training have been evaluated extensively using longitudinal and cross-sectional studies of a variety of sport activities. Dance has been purported to improve cardiovascular fitness. Large muscle groups are involved in various movements and the workload has been described as being moderate to heavy. Professional dancers have rather low value for body fat. The lower values found for female dancers are probably a reflection of the higher caliber of dancers recruited. Underlying the low body fat content is a significant higher value in ectomorphy which seems to be important even for male professional dancers. Muscular endurance was measured by speed sit-ups and leg abductions and was greater in the female professional dancer than the recreational female dancer. Although this difference for the sit-up test was reduced when the absolute score is multiplied by the upper body weight, the speed sit-ups for the female professional group are in the same range as those reported for the elite synchronized swimmers, which reflects heavy training of the abdominal muscles. Little agreement is found with regard to the definition and limits of normal flexibility. There is also evidence that flexibility exists as a single general characteristic of the human body. Despite this, flexibility results between groups and within the training groups clearly show that the physical characteristics is an important part of a dance program.

Don Gelzleichter

* * *

"Hormonal changes in Soccer Players during an Agonistic Season," G. Carli, et al. *The Journal of Sports Medicine and Physical Fitness* 4:489-493, Dec., 1982.

The main result of the present study is that the basal hormone levels of testosterone estradiol, prolactin and cortisol are elevated during the agonistic season. The modifications did not occur simultaneously nor with the same course. During pre-season conditioning athletes were submitted to an intense physical activity twice a day. During this period only testosterone and prolactin were affected. Testosterone is known to be increased after light and heavy exercise. Exercise is known to increase the ability of muscle tissue to synthesize and store glycogen. This ability is dependent upon adequate testosterone levels, and testosterone is known to affect carbohydrate metabolism in muscle by increasing the availability of creatine phosphate. Thus, an increase in testosterone at the beginning of training may be important for the utilization and replenishment of muscle glycogen and creatine. Longitudinal studies have shown that male runners have a great stability in testosterone plasma levels, while in girl swimmers testosterone decreases after six months of training. The discrepancy might be due to the differences in training intensity, sample spatiation and sex. Moreover in our subjects testosterone was significantly increased only after three weeks of training. Prolactin levels are stable through life and are increased by stress and physical exercise. We have shown that prolactin levels are higher than initial values in all the samples collected during training. This elevation confirms the results of a longitudinal study performed in girl swimmers. In male soccer players we found a great stability of estadiol in the initial 3 months of training but there was a sharp increase at the end of the season. These late modifications were related neither to other hormones nor to changes in amount of physical activity. In the present study, on the contrary, cortisol increased after three months and remained elevated afterwards. These changes were not correlated with ACTH levels which were never modified during the season.

Colin Christie

* * *

"Elbow Injuries in Athletes", Loomer, R.L., *Canadian Journal of Applied Sport Sciences*, 7:164, September 1982.

Elbow problems constitute a significant source of disability in athletes, especially those participating in throwing and racquet sports. Baseball especially, but also tennis, javelin and even ice hockey can lead to elbow problems, which if not recognized and managed appropriately, can lead to long term disabilities. "Little league elbow" has caused considerable controversy and in various studies the incidence of elbow pain in pitchers has been shown to increase with age and use. Multiple studies have demonstrated the mechanics and pathophysiology of elbow injuries in athletes. In baseball and javelin throwing, and in tennis serving, the problems arise via the large valgus stresses introduced during the acceleration phase. The valgus elbow stress translated to tension across the medial or ulnar side and compression across the lateral or radial side. Tension induced problems on the medial side are much more frequent and less ominous than those on the lateral. Especially susceptible are athletes who have not warmed up properly. Conditioning for throwing sports or reconditioning following an elbow injury requires a comprehensive training program. One useful approach is to exercise all involved muscles by beginning proximally and "working outward" just as the pitcher does when he throws. When presented with elbow pain in an active throwing or racquet sport athlete, one must take a thorough history regarding the frequency and extent of the stress inducing activity, a careful physical examination noting particularly decrease in range of motion, excessive valgus laxity, local tenderness and creptius, and obtain x-rays to rule out bony lesions. If the disease process does not subside with rest and gradual return to activity, proper instruction in throwing and hitting form and stretching and strengthening exercises, the sports physician, trainer and coach must be very careful about advising further rigorous activity which can potentially lead to disabling osteoarthritis in adulthood.

Paul Concialdi +

Current Literature

Paul Concialdi, ATC, MA
Kiskiminetas Springs School

"The Acromioclavicular Joint", Hawkins, R.J., *Canadian Journal of Applied Sport Science,* June 1983, 8(2): 84.

"The Avoidability of Soccer Injuries", Ekstrand, J. *et al., International Journal of Sports Medicine,* May 1983, 4(2): 124.

"Biomechanical Evaluations of Sports Protective Equipment", Norman, R.W., *Exercise and Sport Science Review*, f1983, 11, 232.

"Clinical Assessment of Suspected Meniscal Tears", Barry, O.C. *et al., Irish Journal of Medical Studies,* April 1983, 152(4): 149.

"Factors Affecting the Prognosis of Menisectomy in Soccer Players", Muckle, D.S., *British Journal of Sports Medicine*, June 1983, 17(2): 91.

"The Force Velocity Curve on a Nautilus Machine", Labrecque, S. *et al., American Corrective Therapy Journal*, March-April 1983, 37(2): 53.

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"Injury Account During the 1980 NCAA Wrestling Championships", Kersey R.D. *det al., American Journal of Sports Medicine,* May-June 1983, 11(3): 147.

"An Introduction to the Use of Electrical Muscle Stimulation with Athletes", Garhammer, J., *National Strength and Conditioning Association Journal,* August-September 1983, 5(4): 44.

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"Relationships Between Muscle Strength and Muscle Cross-Sectional Area in Male Sprinters and Endurance Runners", Maugham, R.J. *et al., European Journal of Applied Physiology*, 1983, 50(3): 309.

"The Relationship Between Stress and College Football Injuries", Cryan, P.D. *et al., Journal of Sports Medicine and Physical Fitness*, March 1983, 23(1): 52.

"Simultaneous Rupture of the Lateral Ligament of the Knee and the Ankle: Case Report", Bruce, G.K., *Australian and New Zealand Journal of Surgery*, April 1983, 53(2): 139.

"Sports Injuries: Hazards of Jogging and Marathon Running", Temple, C., *British Journal of Hospital Medicine,* March 1983, 29(3): 237.

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"Weightlifters Headache", Paulson, G.W., *Headache*, July 1983, 23(4): 193.

*Indicates Articles written by members of the NATA. Please submit bibliographic material of NATA members to the Current Literature Editor at Kiski School, Saltsburg, PA 15681. +

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Case Report

The Use of the Vitabounder as a Component in the Rehabilitation of Lower Leg Injuries in Football

John Foley, Jr., ATC

Most health professionals identify the rebound trampoline as an exercise device for individuals who prefer to exercise at home. Although this device (the Vitabounder) does serve the exercise function well, it has also been effectively utilized to help speed the rehabilitation of football players who have suffered injury to their lower extremity.

One of the problems associated with musculoskeletal injury in football players is the increase in body weight and percent body fat as well as a decrease in cardiovascular conditioning and flexibility during the course of the rehabilitation treatment. Often, these physiological changes result in a decreased psychological outlook and attitude toward the injury. Due to these observations, this athletic trainer implemented the use of the Vitabounder for those athletes who sustained injury to their lower extremities.

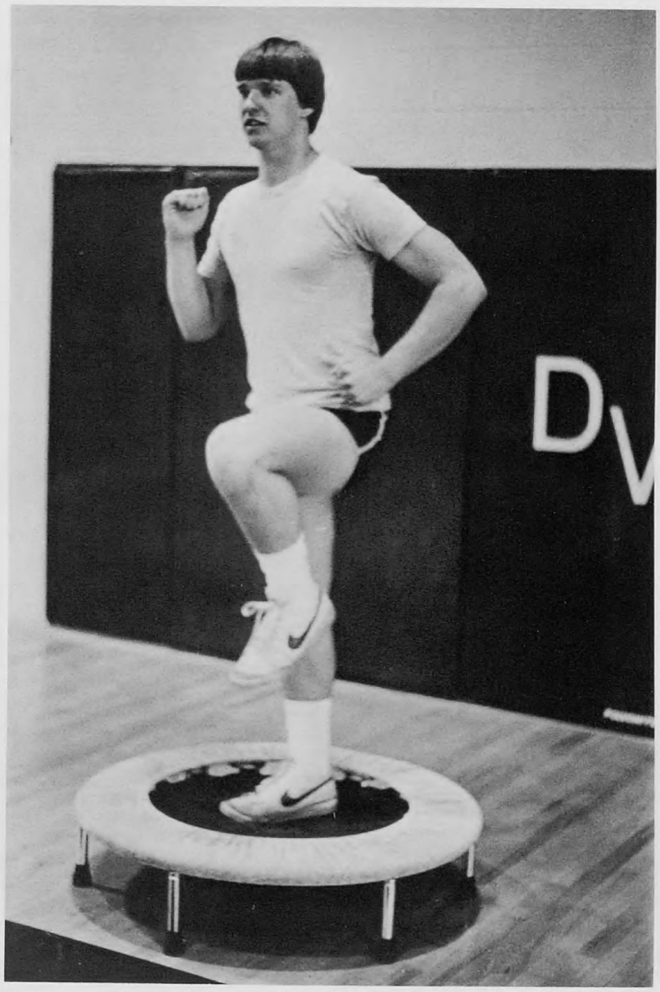
The first case study was an 18-year old white male who played football for eight years prior to the injury. This individual was an offensive guard, 5-feet, 9 inches tall and weighing 302 pounds at the time of his rehabilitation program. The injury suffered was a fractured dislocation of his right ankle. X-rays revealed a fracture of the distal fibula superior to the tibia-fibula syndesmosis. There was also obvious disruption of the medial deltoid ligaments and some posterior comminution. Surgical procedure was for open reduction and internal fixation, with the insertion of a syndesmosis screw and a plate. Removal of the leg cast took place at six weeks, and the plate at one year. It was at this point that the college athletic trainer undertook the case.

At one year, the athlete was still unable to move normally, let alone run, and had to foresake the college varsity football season. The initial examination by the athletic trainer revealed a marked buildup of scar tissue in the injured area (part of the bone had merged with the bone as well) and a significant loss of range in ankle flexibility (eight degrees dorsi-flexion, 33 degrees plantar-flexion). The athlete experienced visible pain upon a shifting of weight onto the injured ankle. In addition, substantial increase in body weight and a decrease in lower leg strength was noted.

A rehabilitation was undertaken. An ankle disc was employed to begin work on range of motion and to help work out some of the excessive scar tissue. Second, a stretch board emphasized dorsi-flexion movement, with surgical tubing used to enhance other ranges of movement. Third, simple towel exercises were the first PRE element of rehabilitation and laid the groundwork for the introduction of the ankle-exercising unit. While range of motion improved moderately (to 11 degrees dorsi-flexion, 40 degrees plantar-flexion), lower leg strength and overall body weight remained a concern.

The fourth element of rehabilitation was the utilization of the Vitabounder. The exercises used on the Vitabounder can be seen in Figure 1. The progression of the exercise was from a tentative jog, to jogging on toes, and finally running in place.

After nine weeks on this program the range of motion continued to improve, as did lower leg strength along



Mr. Foley is the Head Athletic Trainer at Delaware Valley College in Doylestown, Pennsylvania.

with substantial weight loss. After 10 weeks the individual returned to running on a conventional surface. During the following season the athlete was tested and found to be eligible for active participation in varsity football.

Subsequent to this case study four other individuals were treated with the traditional modalities of the whirlpool, lateral step-up, knee extension, the Orthotron and the incorporation of the Vitabounder for injury to the anterior cruciate ligament. Three of these athletes also suffered injury to the medial collateral ligament, while the other sustained a meniscus tear. Height, weight, experience and position of each of these subjects can be found in Table II.

Use of the Vitabounder program lasted 10 weeks. Initially, the individuals jogged for an average time of eight minutes. This duration was increased individually to a total of 15 minutes. Intensity or frequency of foot movement also increased on an individual basis throughout the program.

Results of the introduction of the Vitabounder for lower extremity injury were very favorable. It was observed that the use of this modality: 1) Avoided the inflammation of the injured joints by providing a surface that decreased the stress associated with jogging; 2) decreased the amount and occurrence of swelling resulting in less daily pain; 3) provided important feedback to the individual about his cardiorespiratory condition throughout the program; 4) contributed to a more positive attitude toward the rehabilitation; 5) reduced the total time for rehabilitation and 6) helped the athlete maintain a beneficial weight level.

With these observations, the Vitabounder has become an integral component in the rehabilitation of lower limb injuries at this program.

An excellent discussion of rehabilitation approaches geared to ankle anatomy appears in *Athletic Training*, "A Functional Approach in the Rehabilitation of the Ankle and Rear Foot", Fiore and Leard, Winter, 1980, Pages 231-235. +

Table I

	SUBJECT 1	SUBJECT 2	SUBJECT 3	SUBJECT 4	SUBJECT 5
ENTRANCE	8 dorsi-flexion 33 plantar-flexion	78 flexion -58 extension	55 flexion -42 extension	95 flexion -15 extension	87 flexion -55 extension
PRE BOUNDER	11 dorsi-flexion 40 plantar-flexion	120 flexion -16 extension	120 flexion -15 extension	125 flexion -10 extension	122 flexion -12 extension
POST BOUNDER	13 dorsi-flexion 43 plantar-flexion	135 flexion -8 extension	135 flexion -8 extension	135 flexion -3 extension	133 flexion -6 extension
DIFFERENCE A	2 dorsi-flexion 3 plantar-flexion	15 flexion 8 extension	15 flexion -7 extension	10 flexion -7 extension	11 flexion 6 extension
TOTAL DIFFERENCE	5 dorsi-flexion 10 plantar-flexion	57 flexion -50 extension	80 flexion -35 extension	40 flexion -8 extension	46 flexion 49 extension

DIFFERENCE A is tne difference between PRE BOUNDER and POST BOUNDER.
TOTAL DIFFERENCE is the difference between ENTRANCE and POST BOUNDER.

Table II

	SUBJECT 1	SUBJECT 2	SUBJECT 3	SUBJECT 4	SUBJECT 5
AGE	19	18	19	18	21
HEIGHT	5 feet, 9½ inches	6 feet, 2 inches	5 feet, 9 inches	5 feet, 9 inches	6 feet, 2 inches
WEIGHT	302-262	208-193	165-157	265-250	240-225
YRS. EXPERIENCE	8	7	9	5	10
POSITION	GUARD	QUARTERBACK	RUNNING BACK	TACKLE	GUARD

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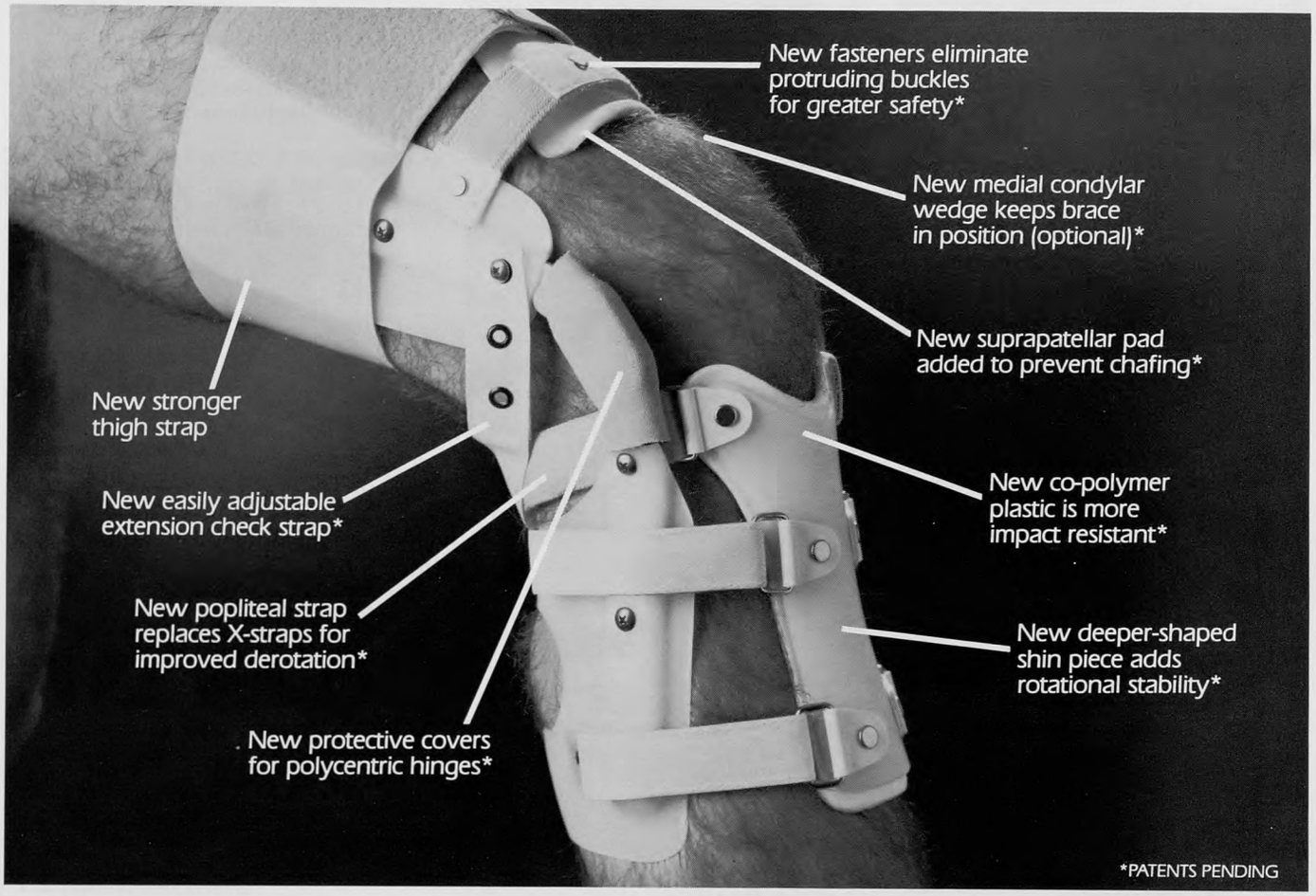

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Notes *from the* National Office

"To inform and update the membership on various subjects of interest and answer the most frequently asked questions."

WILL THE REAL JOHN DOE PLEASE STAND UP?

***Recently a case of mistaken indentity occurred in the National Office which motivated us to mention this in our "Notes". This situation arises frequently and upon checking previous issues we could find no mention of it to you, the membership. The problem arises when member John Doe (a fictitious member, of course) communicates with the National Office and signs his letter with his knickname. Now, no doubt within his circle of friends and associates John Doe *is* known as "Jack" or "Sonny" or "Spider", but when his communication arrives here the National Office staff member who handles his problem can not readily locate his file because there are perhaps over 100 "Does" on file and of that number a dozen or more are named John. The staff member must be a real detective to locate and identify the correct John Doe before proceeding with the solution to his problem. The bottom line, Members, and we sincerely seek your cooperation in this, is please always use your correct, legal name when communicating with the National Office. As has been stated before, time is money and whenever we save time for your Association, we also save its funds. If you with to sign "Spider" in addition to John Doe, fine. But do give us your NATA recorded name to work with.

REPLACEMENT JOURNALS

***The policy for handling missing Journal claims due to address change is based on the stipulation that **an address change must be received in the National Office AT LEAST 30 days prior to publication** in order for a member to receive a gratis replacement issue. If upon checking the member's file, it is determined that the address change was received 30 days prior to date of publication, but due to computer lag the new address did not make the Journal mailing, then we send the replacement free of charge. If it falls into a "gray area", we give the member the benefit of the doubt and send the free replacement. If, however, the member did not send in the address change promptly, or if he/she did not instruct the post office as to mail forwarding (per our published request) then the responsibility for not having received the journal rests with the member and the usual replacement charge is made. Also, to clarify a question which sometimes arises, new members do not receive back issues. They will be on the Journal mailing list effective with the first issue published after joining NATA — not retroactively.

BACK ISSUES

***Back issues of **ATHLETIC TRAINING** will be shipped upon receipt of confirmation of order and payment of the appropriate amount. Back issues are $7.00 each to non-members, $5.00 to members. This charge includes first class postage. At the present time the following issues are in stock:

1971	*Winter (V.6#4)*
1973	*Fall (V.8#3)*
	Winter (V.8#4)
1974	*Fall (V.9#3)*
	Winter (V.9#4)
1975	*Fall (V.10#3)*
	Winter (V.10#4)
1976	*Summer (V.11#2)*
	Fall (V.11#3)
	Winter (V.11#4)
1977	*Summer (V.12#2)*
	Fall (V.12#3)
1978	*Summer (V.13#2)*
1979	*Spring (V.14#1)*
	Fall (V.14#3)
	Winter (V.14#4)
1980	*Spring (V.15#1)*
	Summer (V.15#2)
	Fall (V.15#3)
	Winter (V.15#4)
1981	*Spring (V.16#1)*
	Summer (V.16#2)
	Fall (V.16#3)
	Winter (V.16#4)
1982	*Spring (V.17#1)*
	Summer (V.17#2)
	Fall (V.17#3)
	Winter (V.17#4)
1983	*Spring (V.18#1)*
	Summer (V.18#2)
	Fall (V.18#3)
	Winter (V.18#4)

Photo copies of specific articles from back issues will be supplied for $1.00 per page. Contact Barbara Manning.

FROM THE MEMBERSHIP OFFICE

***Remember, one may join NATA at any time. For your individual case it may be more advantageous to join at a particular time of year. If you have any questions, contact our office. The following breakdown is given for your information.

1984 Dues Structure

DISTRICT		CERTIFIED	ASSOCIATE	STUDENT	AFFILIATE	ADVISORY	ALLIED
District 1	CT, ME, MA, NH, RI, VT, Quebec	$10.00	$10.00	$ 5.00	$10.00	$10.00	$10.00
District 2	DE, NJ, NY PA	$10.00	$10.00	$ 5.00	$10.00	$10.00	$10.00
District 3	MD, NC, SC VA, WV, District of Columbia	$ 5.00	$ 5.00	$ 3.00	$ 5.00	$ 5.00	$ 5.00
District 4	IL, IN, MI, MN, OH, WI, Manitoba, Ontario	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00
District 5	IA, KS, MO, NE, ND, OK, SD	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00
District 6	AR, TX	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00
District 7 *	AZ, CO, NM, UT, WY	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00
District 8	CA, NV, HI	$10.00	$10.00	$10.00	$10.00	$10.00	$10.00
District 9	AL, FL, GA, KY, LA, MS, TN	$12.00	$12.00	$ 4.00	$12.00	$12.00	$12.00
District 10	AK, ID, MT, OR, WA, Alberta, British Columbia, Saskatchewan	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00	$ 5.00

*University of Colorado is in District 5, not District 7.

FROM THE CONTINUING EDUCATION OFFICE

***Due to the volume of mail received in this office it is virtually impossible to comply with every request for CEU credit confirmation. Current policy requires a response only to those requests that have been denied or those in which further information is needed. However, if you wish to have confirmation of your CEUs, please submit a stamped, self-addressed envelope and we will be happy to respond as soon as possible. Otherwise, rest assured that your submission has been accepted. Many members phone the office periodically for CEU totals, which is perfectly alright. We are glad to report via telephone.

Many of your CEU requests are arriving in an unacceptable form. You MUST submit these requests on the proper CEU Report Form which is located in the Winter '83 issue of ATHLETIC TRAINING (Volume 18, Number 4, page 337). CEU requests not submitted on this approved designated form will have to be returned.

GRAFFITTI

***If it's not too late for New Year's Resolutions, you may want to choose one of these:

1. Ask your school librarian about a subscription to ATHLETIC TRAINING.
2. Tell your team physician about Advisory membership.
3. Be sure your CEUs are reported within 30 days.
4. If you have a change of address, report promptly — even in advance if you know the address.
5. Plan a visit to the National Office in 1984!

*** Don't miss the centerfold in this issue which should tell you **EVERYTHING YOU'D EVER NEED TO KNOW** about the Nashville meeting in June. Hope to see you there!+

MOVING?

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

Case Report

A Lower Leg Epiphyseal Plate Injury In a Young Athlete*

"Is It Just An Ankle Sprain?"

William Joseph Collins, III, DPM, CPT, MSC, US Army
Richard G. Hofner, MS, ATC

Ankle sprains are the most prevalent of injuries among athletes of all ages. Trainers routinely evaluate inversion and eversion sprains to determine which ligaments are involved and how severely. The sprain of the adolescent ankle, however, may not be an injury to the ligaments, but may actually be an epiphyseal separation or fracture separation of the lower leg. It is beneficial for the athlete that the trainer and team physician take a close look at these sprains that occur near bone growth centers. Conservative care may prevent possible abnormal growth patterns that may be aggravated by an aggressive rehabilitation program or continued sports activity.

Review of Literature

Much of the literature categorizing the nature and prognosis of trauma to the epiphyseal plate includes the research done by Salter and Harris (5). Their statement: "Trauma that would result in a sprain or dislocation to an adult, will usually result in a traumatic separation of the epiphysis in a child." emphasizes the frequency of such injury in younger athletes. These injuries are particularly prevalent among adolescents because of the periods of rapid growth that occur at this time and an increase of competitive athletic activity among this age group.

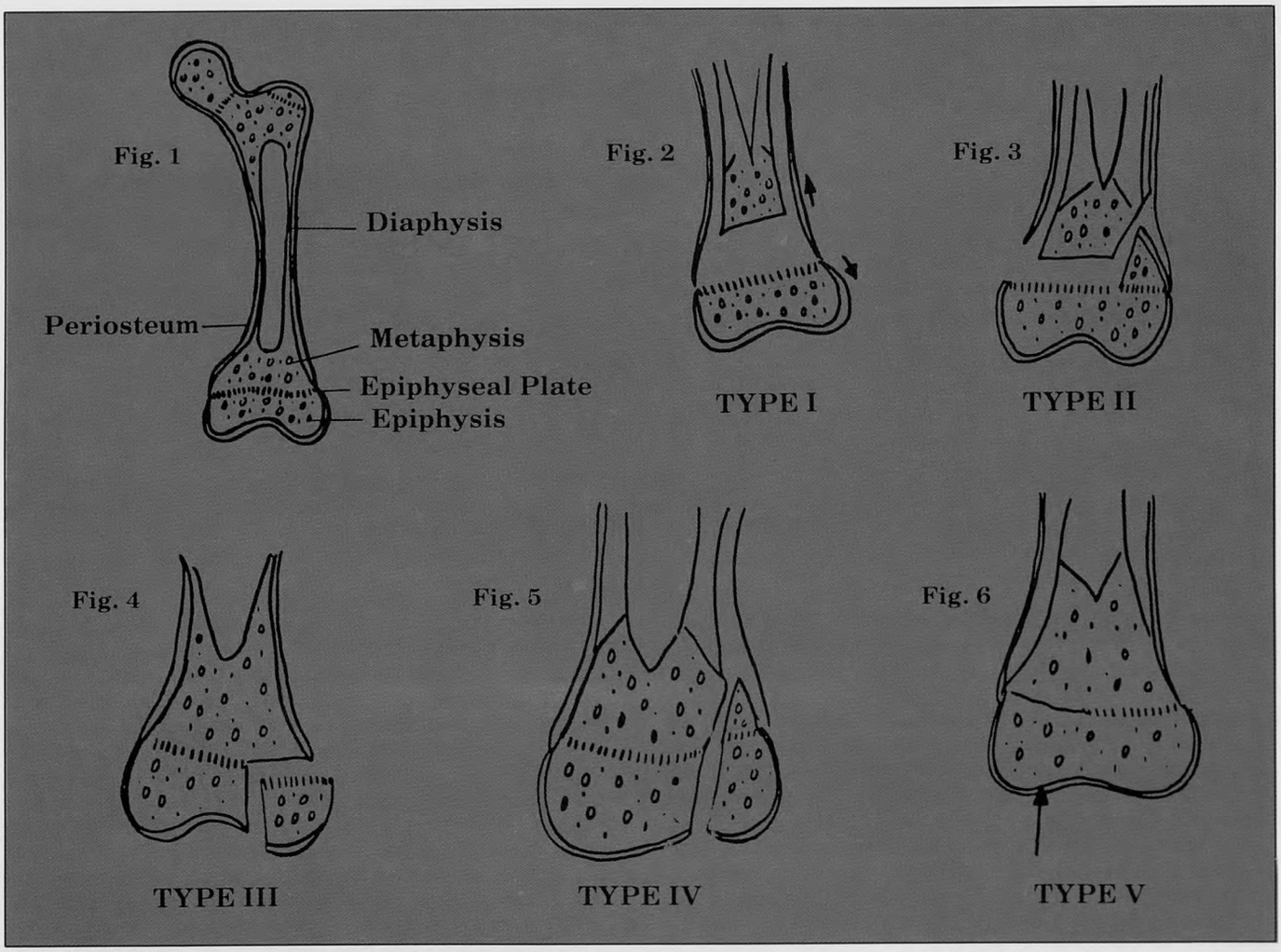
Of all injuries to the long bones during childhood, approximately 50% are to the epiphyseal plate (1). Fortunately, a great majority of these injuries are recognized as such and result in no disruption of normal growth patterns. These injuries that do change growth may result in cessation of all or part of the epiphyseal plate resulting in bone length differences or in slightly accelerated growth with little or no length differences. An accelerated growth of the bone plate may result but this is rare and, when it occurs, will not usually cause discernable differences in angular deformity or bone length.

Radiographic examination is helpful in diagnosing growth plate injuries and stress radiographs may be necessary to help determine the extent and type of epiphyseal injury (2). These injuries are classified into five types (1,4,5,6) based on the mechanism of injury and the relationship of the fracture line to the growth center. The trauma may harm any or all parts of the bone near the growth area, including the metaphysis, epiphseal plate, and epiphysis (Figure 1). The first three of these types are most commonly caused by sheering forces and have good prognoses. Type 1 shows the complete separation of the epiphysis and the epiphyseal plate from the metaphysis (Figure 2). Note that the epiphyseal plate usually comes away with the epiphysis. Type 2 is similar to type 1, but a portion of the metaphysis is also pulled away with the intact epiphyseal plate (Figure 3). This type is the most frequent of all epiphyseal injuries. In type 3, only a portion of the epiphysis and plate is pulled away (Figure 4). Most of these usually heal without deformity if good reduction is attained since the arterial flow to the plate across the epiphysis is not damaged. Types 4 and 5 can be caused by severe torsional or impact forces and have questionable prognosis. Type 4 (Figure 5) is a complete separation of the metaphysis and epiphysis. Surgical intervention including open reduction and internal fixation is often necessary. Type 5 (Figure 6) results in a crushing of the epiphyseal plate which may not be noticed on radiographic examination. These injuries require a minimum of 3 weeks of immobilization post trauma and often longer periods are necessary. Even with immobilization, there is an almost inevitable alteration of growth with Type 5. On most occasions, this alteration of growth is not easily detectable and usually does not result in clinically evident pathology.

Case Study

D.S. is a 10-year-old white male in overall excellent health. He was initially seen when he presented to the Emergency Room at McDonald Army Community Hospital, Fort Eustis, Virginia when he was complaining of pain, heat, swelling, and limitation of function in his right ankle. The history of the present injury was that he had been playing soccer and his right foot had come down on a fellow player's foot, causing him to twist his ankle. The patient then demonstrated the mechanism of injury with his unaffected ankle which was typical of an inversion mechanism. The patient indicated that the pain was located primarily over the lateral aspect of the ankle.

Dr. Collins is currently Chief of Podiatry at McDonald Army Community Hospital, Fort Eustis, Virginia. Mr. Hofner is Assistant Athletic Trainer at Old Dominion University, Norfolk, Virginia.



The physical examination revealed an edematous, warm, right lateral ankle which was painful with range of motion, especially inversion of the subtalar joint. Palpation over the fibular malleous at the distal aspect elicited exquisite pain. Radiographic studies revealed a Salter-Harris Type 2 fracture-separation, this being a fracture through the growth plate and extending through the metaphyseal region. Allignment was excellent and reduction was not necessary.

Treatment initially consisted of a short leg walking cast for four weeks. Analgesics were not necessary. The patient first returned to the clinic in four weeks for cast removal and, at that time, had no complaints. Follow up radiographs showed boney healing progressing at a rapid rate. The patient was started on limited activity which was gradually increased over a three week period. Follow up examination at four months postinjury showed the patient fully active in sports without complaints. Radiographic evidence of the fracture was barely perceptible and no growth disturbance was apparent.

Conclusion

Injuries to growing children that may be often diagnosed as "strains and sprains" may actually represent epiphyseal injury. These may carry a high risk of growth disturbances. There is a greater possibility of growth alteration if the diagnosis is not made and if the treatment is not appropriate. A high index of suspicion is necessary when examining young athletes in regard to epiphyseal injuries. Adequate attention must be made to these injuries to protect the young athlete from further harm and inappropriate treatment. Children should not resume participation in an athletic activity when such an injury is suspected. Further diagnostic examination is necessary to distinguish these injuries from less significant trauma. Radiographic examination does not rule out an epiphyseal injury such as Type 1 and sometimes Type 5. These diagnoses must be made on primary clinical examination and not solely on X-ray. Remember that the weakest link of a chain breaks first and in children this is usually the epiphyseal plate.

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6. *Standard Nomenclature of Athletic Injuries.* American Medical Association, 1976 P. 18. +

*The opinions or ascertations contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the Department of the Army or the Department of Defense.

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THERAGESIC ¼ oz. x 200	114.00	SUPER CLEANER 1 QT.	7.00			

EXCELLENT QUANTITY PRICES

Constitution of the National Athletic Trainers' Association, Inc.

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 interests 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 eight (8) classes of membership as follows:

(1) Certified
(2) Associate
(3) Retired
(4) Student
(5) Affiliate
(6) Advisory
(7) Allied
(8) Honorary

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/her 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 or herself its Constitution and By-Laws.

Section 2
Membership in the National Athletic Trainers' 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 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 a 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 Trainers' 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 meet-

ing 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 respondence 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 by a District Director and with approval of the membership of the district to the Executive Director at least nine (9) weeks prior to the annual business meeting. The Executive Director shall distribute copies of the proposal to all voting members at least six (6) weeks prior to the annual business meeting.

Section 2
A proposed amendment to the Constitution that has been properly submitted shall be read at the annual business meeting and a two-thirds (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, Inc.

Code of Ethics

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/herself 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 roles in athletic programs at all levels. It is for this reason that the Board of Directors of the National Athletic Trainers' Association, Inc. 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, Inc. will understand and apply the principles set forth in the CODE and make every effort to do the right thing at the right time to the best of their ability and judgement.

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, Inc. 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 interests of its members by providing a means for free exchange of ideas within the profession.

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* 1971, 1973, 1974, 1976, 1977, 1978, 1979, 1980, 1982, 1983
Rev. 830926

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, Inc. 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, Inc. 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 the 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 Trainer's Association, Inc. who does not know the candidate and his/her qualifications.

Section 7 — Misrepresentation

It is unethical for a member to misrepresent his/her membership status and/or classification.

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, Inc. 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 and 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, Inc. 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, Inc. in the capacity of liaison with another organization.
3. *Initiate Procedure for Cancellation of Membership*

Section 3 — Action by the Board of Directors

The 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, Sections 1 and 2 of the Constitution. +

Calendar of Events

Jeff Fair, ATC, MS
Oklahoma State University

March 1984

8-10 Fifth Annual Sports Medicine Symposium, Tucson, AZ. Contact University of Arizona College of Medicine, Office of Continuing Medical Education, Arizona Health Sciences Center, Tucson, AZ 85724.

10-11 Athletes in Action Sports Medicine presents "Building Bridges - Integration of All Disciplines into Sports Medicine", Fountain Valley, CA. Contact Jim Porter, Athletes in Action, 17102 Newhope St., Fountain Valley, CA 92708.

11 International Aquatic Conference, Indianapolis, IN. Contact Julie Taraba, Recreonics Corporation, 1635 Expo Lane, Indianapolis, IN 46224.

11-13 International Aquatic Conference '84, Indianapolis, IN. Contact Conference Coordinator, International Aquatic Conference '84, 1635 Expo Lane, Indianapolis, IN 46234.

12 University of Hawaii Sports Medicine Course, Honolulu, HI. Contact Joy Lewis, Box CEP-CCECS, 2530 Dole State, Honolulu, HI 96822.

15-17 Great Lakes Athletic Trainers Association Winter Meeting, Schaumburg, IL. Contact Roger Kalisiak, Hoffman Estates High School, 1100 West Higgins Road, Hoffman Estates, IL 60195.

16-18 NATA District 5 Annual Meeting, Lincoln, NE. Contact Jerry Weber, Athletic Department, University of Nebraska, Lincoln, NE 68588.

16-17 17th Annual Emerald City Sports Medicine and Conditioning Seminar, Seattle, WA. Contact Beverly Richdale, Northwest Sports Medicine Foundation, 1551 NW 54th, Suite 200, Seattle, WA 98107.

24 Eighth Annual Sports Medicine Clinic, Orlando, FL. Contact Kathy A. Fox, Department of Athletics, University of Central Florida, Orlando, FL 32816.

31 Sports Medicine Symposium, Mobile, AL. Contact Dr. James M. Manning, Chairman, Sports Medicine, U.S. Sports Academy, Box 8650, Mobile, AL 36608.

April 1984

4-7 Fundamentals of Fitness Course, Lake Buena Vista, FL. Contact Cindy Shenk, CME Program Coordinator, Orlando Regional Medical Center, 1414 South Kuhl Avenue, Orlando, FL 32806.

6-8 Radiographic Assessment: A Guide for Better Patient Management, Spine and Pelvic, Washington, DC. Contact American Academy of Orthopaedic and Sports Physical Therapy, 3849 Stirrup Drive, Erie, PA 16506.

7-8 Cybex/Isokinetic Clinical Workshops: "Hands-on Experience" (Intermediate), La Crosse, WI. Contact George J. Davies, PT, ATC, Orthopaedic and Sports Physical Therapy, 2501 Shelby Road, La Crosse, WI 54601.

9-13 La Crosse Cardiac Rehabilitation Workshop, La Crosse, WI. Contact Philip K. Wilson, La Crosse Exercise Program, University of Wisconsin-La Crosse, La Crosse, WI 54601.

14-15 First Annual New England Athletic Training Seminar, West Springfield, MA. Contact Charles Redmond, Head Athletic Trainer, Springfield College, Springfield, MA 01109.

May 1984

4-6 Pitfalls and Perils of Summer Sports, Bryson City, NC. Contact Bert Fields, MD, Nantahala Outdoor Center, US19W, Box 41, Bryson City, NC 28713.

17-18 Sports Medicine Today, New York, NY. Contact Dr. Dov Nudel, Program Chairman, Schneider Children's Hospital, Long Island Jewish-Hillside Medical Center, New Hyde Park, NY 11042.

19-20 Pennsylvania Athletic Trainers Society Fourth Annual Meeting and Clinical Symposium, Harrisburg, PA. Contact Joan Maser, Department of Athletics Carnegie-Mellon University, Pittsburgh, PA 15213.

23-26 1984 American College of Sports Medicine Annual Meeting, San Diego, CA. Contact Jane Shepard, ACSM, P.O. Box 1440, Indianapolis, IN 46206.

June 1984

3-8 Teaching Stress Management and Relaxation Skills, La Crosse, WI. Contact Philip K. Wilson, La Crosse Exercise Program, University of Wisconsin-La Crosse, La Crosse, WI 54601.

9 NATA Sports Medicine Clinic Trainers and Therapists Meeting, Nashville, TN. Contact Randy L. Biggerstaff, ATC, Athletic Trainer, Iowa Orthopedic Sports Medicine Clinic, 2330 NW 106th St., Urbandale, IA 50322.

9-13 1984 NATA Convention, Nashville, TN. Contact NATA, P.O. Box 1865, Greenville, NC 27834.

11-15 La Crosse Cardiac Rehabilitation Workshop, La Crosse, WI. Contact Philip K. Wilson, La Crosse

Exercise Program, University of Wisconsin-La Crosse, La Crosse, WI 54601.

18-22 Fifth Annual Boston Sports Medicine Institute, Boston, MA. Contact Dr. Alfred Roncarati, Boston Sports Medicine Institute, University of Massachusetts-Boston, Division of Continuing Education, Downtown Center, Boston, MA 02125.

23 Cybex/Isokinetic Clinical Workshops: "Hands-on Experience" (Basic), La Crosse, WI. Contact George J. Davies, PT, ATC, Orthopaedic and Sports Physical Therapy, 2501 Shelby Road, La Crosse, WI 54601.

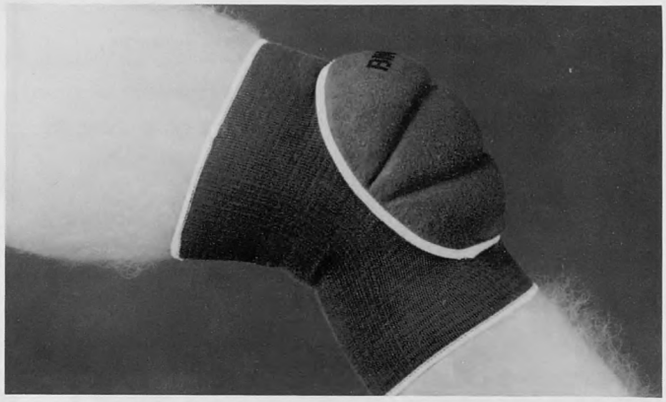
27-30 Art & Science of Sports Medicine, Charlottesville, VA. Contact Dr. Joe Gieck, University of Virginia, P.O. Box 3785, Charlottesville, VA 22903.

29-30 Second Annual Conference on Innovation in Sports Medicine, Galveston, TX. Contact Pat Biesecker, Course Coordinator, Office of Continuing Education, The University of Texas Medical Branch, Galveston, TX 77550.

August 1984

3-4 7th Annual Sports Medicine Symposium, Waunakee, WI. Contact Sarah Z. Aslakson, Continuing Medical Education, 465B WARF Bldg., 610 Walnut St., Madison, WI 53705. +

New Products



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