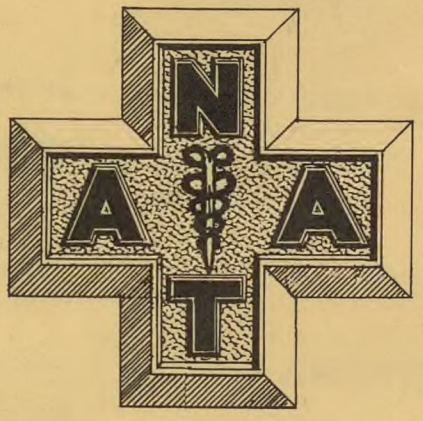
R. C. White

The JOURNAL

FALL 1960

OF THE

NATIONAL ATHLETIC TRAINERS ASSOCIATION



12th ANNUAL MEETING

MADISON, WISCONSIN, JUNE 12, 13, 1961

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Purdue University, Lafayette, Indiana

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AN OPEN INVITATION

The National Athletic Trainers Association is pleased to extend, to other than their members, an opportunity to subscribe to *The Journal,* the official publication of the association. This quarterly magazine serves as a publication source and clearing house for the research and writings about topics pertinent to the casual factors, prevention, or treatment, of athletic injuries. In previous issues have been articles authored by member athletic trainers, physicians, physiologists, physical therapists, corrective therapists, and others vitally interested in improving athletic performance or furthering the health and safety of the young men entrusted to their care. It is the sincere hope of the association that through the interchange of information by *The Journal* that all students participating in sports programs in secondary schools and colleges of the county will benefit by the greater knowledge available to us.

We hope that you will want each issue as a reference for your staff and for your student majors. Yearly subscription price is two dollars, which should be sent to Wm. Newell, National Secretary, 1104 Beck Lane, Lafayette, Indiana.

THE SECRETARY'S REPORT

Eleventh Annual Meeting of National Athletic Trainers Association June 28, 1960

The eleventh annual meeting of the National Athletic Trainers Association was held in the ballroom of the President Hotel, Kansas City, Missouri. The meeting was called to order at 4:05 P.M. by Chairman of the Board, Robert Weingart.

The roll call was dispensed with.

The minutes of the 1959 meeting at Columbus, Ohio, were approved without being read. The report of the Board of Directors meeting of June 17, 1959, was approved without being read.

The treasurer's report was approved as written.

The secretary read the report of the Chairman of the Board of Directors.

Report of the Chairman of the Board of Directors

At the Board of Directors meeting, these actions were decided:

1. Chuck Medlar reported to the group on the final corrections to the Constitution and the Bylaws. The report was approved.
2. The Constitution, the Bylaws, and the Code of Ethics will be printed in booklet form and will be mailed to the membership.
3. The Board accepted a report from the Committee on Professional Advancement.
4. A. C. "Whitey" Gwynne, Chairman of the Committee on Committees, gave a report of the activities of the committees. The report was approved.
5. Madison, Wisconsin, will be the site of the 1961 annual meeting with District No. 4 acting as host.
6. The dates of the national meeting were set for the second week in June.
7. Jackie Copeland was re-elected Editor of the Journal. Tom Healion was re-elected Advertising Manager. Commercial Printing Company, Lafayette, Indiana, will again publish the Journal.
8. Eddie Wojecki was heard concerning a proposed Athletic Trainers Hall of Fame. The report was approved.
9. A committee was selected to make a study of the proposed Hall of Fame and to initiate the mechanism for nominations to the Hall. The committee membership is:
   Eddie Wojecki, Rice University, Chairman
   S. E. Bilik, M.D., New York City, N. Y.
   Charles Cramer, Gardner, Kansas
   Frank Cramer, Gardner, Kansas
   Robert G. Brashear, M.D., Knoxville, Tennessee
   Robert Officer, University of Oregon
   E. W. Pennock, Springfield College
10. It was discussed that N.A.T.A. have a library of books, article reprints, film information, etc., that could be placed out on a loan basis to interested groups. This was tabled.
11. The association will make a recommendation to the N.C.A.A. that there be a sanctioned supervised preconditioning period of two weeks to precede spring football practice without protective equipment excepting head guards.
12. The following men were appointed to committees:
   Membership:
   Jay Colville, Miami University, 2 years
   Billy Pickard, Brazosport High School, 3 years
   James H. Goostree, University of Alabama, 3 years
   Fred Hoover, Clemson College, 3 years
   Code of Ethics:
   Weaver Jordan, Baylor University, 3 years
   Marty Broussard, Louisiana State, 3 years
   Injury:
   Bob Grant, Boston University, 3 years
   Tommy Wilson, University of Houston, 3 years
   Constitution and Bylaws:
   "Whitey" Gwynne, West Virginia, 3 years
   Twenty-five Year Award:
   Ross Moore, Texas Western College, 3 years
   Honorary Memberships and Awards:
   Al Sawdy, Bowling Green, 3 years
13. Active members, as long as they remain in good standing and so desire, may retain their classification for a period of two years after leaving the athletic training field.
14. Bill Newell was re-elected as Executive Secretary.
15. It was discussed that an award be given to the outstanding sports writer in the nation who has written the best article about the athletic training association or profession. This can be handled on a district basis.
16. A suitable award shall be given at the next annual meeting to the preceding national program chairman and to the national exhibits manager as association expression of appreciation.

The report was moved for approval, seconded and carried.

Committee Reports

Honorary Memberships and Awards

Walter Bakke, Chairman, presented a more permanent award to the six honorary members: Charles Cramer, Frank Cramer, Mike Close, Robert G. Brashear, M.D., Don H. O'Donoghue, M.D. and S. E. Bilik, M.D. This action was received with a standing ovation.

Twenty-five Year Award

Laurence Morgan, Chairman, presented two members for awards. Recipients were Roosevelt Collins, Colorida College and Naseby Rhinehart, Montana State University.

Constitution and Bylaws

Charles Medlar, Chairman, re-emphasized that the Constitution and Bylaws revisions had been approved by the Board of Directors and would soon be published for mailing to the membership.

Injury

Ken Rawlinson, Chairman, reported that an excellent injury study had been compiled by Bobby Gunn, formerly of Robert E. Lee High School, Baytown, Texas. Information inquiry could be directed to Bobby Gunn through this address.

Program

Fred Wappel, Chairman, expressed appreciation of the excellence of the program speakers and directed two recommendations for study to the Board of Directors:

1. The formation of a registration committee.
2. The formation of a hotel accommodations committee.

Exhibiting

Laurence Morgan, Chairman, expressed deep appreciation to the companies exhibiting.

It was moved, seconded and approved that the committee reports be accepted.

Continued on page 3

It was called to the attention of the members that Ike Hill, formerly of the University of Illinois and James McLaughlin, University of Pennsylvania, had passed away during the past year. One minute of silence was observed in honor of the deceased members. It was proposed that the Awards Committee have a suitable memorial scroll made that could be presented to the next of kin of deceased members.

A standing ovation was given to Fred Wappel and Warren Ariail, co-chairmen of the program, and Laurence Morgan, Exhibits Manager, for a job very well done.

Bob Weingart, as presiding officer, expressed the association's gratitude and appreciation to those responsible for the picnic held on the Cramer Chemical Company grounds at Gardner, Kansas. This received a standing ovation from the floor.

Bob Weingart presented the new Board of Directors:
District No. 1, Joe Altott, Williams College
District No. 2, Jules Reichel, Syracuse University
District No. 3, William Fry, University of Maryland
District No. 4, Mel Blickenstaff, Columbus High School
District No. 5, George Sullivan, University of Nebraska
District No. 6, Eddie Wojecki, Rice University (acting)
District No. 7, "Tow" Diehm, University of New Mexico
District No. 8, Mel Moretti, College of the Pacific
District No. 9, Rusty Payne, University of Kentucky

"Tow" Diehm, University of New Mexico, was presented as the new Chairman of the Board of Directors.

Walter Bakke, host trainer for the host district, spoke briefly about next year's meeting to be held in Madison, Wisconsin. Tom Healion was announced as program chairman.

Duke Wyre, N.A.T.A. representative to the United States Olympic Association, presented those athletic trainers selected to go with the teams to Rome, Italy. They are:

Steve Witkowski, Wesleyan University, Head Trainer
Duke Wyre, University of Maryland
Walter Bakke, University of Wisconsin
Dean Nesmith, University of Kansas
Marty Broussard, Louisiana State University
Jules Reichel, Syracuse University
Ken Rawlinson, University of Oklahoma
Buck Andel, Georgia Tech. University

Duke then gave a very informative report to the floor concerning the organization and means of selection of Olympic trainers.

Joe Blankowitsch was given a hand for his handling of the registration desk.

Having no further business before the floor, the meeting was adjourned at 5:10 P.M.

William E. Newell, Executive Secretary

Board of Directors Meeting—June 29, 1960

These items were taken under consideration:

1. A registration committee for the national meeting was discussed.
2. Joe Blankowitsch, Muhlenburg College, was selected to chair the Registration Committee.
3. Future national meeting sites were discussed. Those under consideration were:
   Chicago, Illinois — Albuquerque, New Mexico
   Houston, Texas — Miami Beach, Florida
4. It was decided to select a meeting site two years in advance with an alternate site approved. Confirmation of the meeting site must be received one year in advance from the host district. It was the decision of the Board that selection must be made by keeping geographical sections under consideration.
5. Albuquerque, New Mexico, was selected as the site of the 1962 meetings. The alternate site will be Houston, Texas.

N.A.T.A. TREASURER'S REPORT

June 12, 1960

Balance on hand June 1959		$1,530.52
Deposits:		
Dues	$2,079.00	
Sale of Pins and Emblems	21.50	
Convention Refund	957.00	
1959 Registration Fees	256.00	
Journal Advertisements	527.55	
Journal Subscriptions	14.00	3,855.05
Disbursements:		
Lafayette Mailing Service	299.59	
Journal (3 issues), Rosters, Charts, Envelopes	1,328.64	
Secretarial Expenses	916.39	
Stationary, Envelopes, Membership Cards, etc.	119.33	
Office Supplies	7.40	
Postage	81.39	
Phone Calls	5.00	
Dues Return	78.00	
N.C.A.A. Dues	25.00	
U. S. Olympic Association Dues	10.00	
Honorary Membership Awards—Framing, Engraving	24.85	
Karl Klein Monograph	100.00	
Howard Leibee Article	40.00	
Advances for 1960 Program	170.00	3,205.59
Balance on hand		2,179.98
Checks not canceled		1.64
		50.00
		1.00
		120.00
Certified Statement from Bank		2,352.62

N.A.T.A. Membership – 1960

Active	388
Associate	219
Allied	33
Advisory	85
Honorary	6
Retired	2
Total	733

At the meeting of the Board of Directors June 1960, these men were appointed or reappointed to the following committees:

Standing Committees:

Membership—Nine Members

Appointment to 1963:

Billy Pickard, Brazosport High School, Freeport, Texas. (Representing District 6)

Jim Goostree, Box K, University of Alabama, Tuscaloosa, Alabama. (Representing District 9)

Fred Hoover, Clemson University, Clemson, South Carolina. (Representing District 3).

Appointment to 1962:

William F. X. Linskey, Chairman, 163 Maga-

Continued on page 4

zine Street, Cambridge 39, Massachusetts. (Representing District 1)
Jay Colville, R. R. 1, Oxford, Ohio. (Representing District 4)
Marshall Cook, Montana State College, Bozeman, Montana. (Representing District 7)

Appointment to 1961:
Edgar H. Biggs, Bucknell University, Lewisburg, Pennsylvania. (Representing District 2)
Dean Nesmith, Kansas University, Lawrence, Kansas. (Representing District 5)
Robert A. Peterson, University of Washington, Seattle 5, Washington. (Representing District 8)

Code of Ethics—Six Members

Appointment to 1963:
Weaver Jordan, Baylor University, Waco, Texas
Marty Broussard, Louisiana State University, Baton Rouge, Louisiana

Appointment to 1962:
Howard Waite, Chairman, University of Pittsburgh, Pittsburgh, Pennsylvania
Henry "Buck" Andel, Georgia Tech, Atlanta, Georgia

Appointment to 1961:
Edward J. Noonan, 17 Dunster Street, Cambridge, Massachusetts
George Anderson, Oakland Raiders, 1437 Franklin, Oakland, California

Advisory:
Robert G. Brashear, M.D., Knoxville Orthopedic Clinic, 630 Concord Street, S.W., Knoxville 19, Tennessee

Injury—Six Members

Appointment to 1963:
Bob Grant, Boston University, Boston 15, Massachusetts
Tommy Wilson, University of Houston, Houston, Texas

Appointment to 1962:
Kenneth B. Rawlinson, Chairman, University of Oklahoma, Norman, Oklahoma
John "Rusty" Payne, University of Kentucky, Lexington, Kentucky

Appointment to 1961:
Nolan K. Burnett, Utah State University, Logan, Utah
Bill Dayton, Yale University, New Haven, Connecticut

Constitution and Bylaws—Three Members

Appointment to 1963:
A. C. "Whitey" Gwynne, West Virginia University, Morgantown, West Virginia

Appointment to 1962:
Charles Medlar, Chairman, Penn State University, University Park, Pennsylvania

Appointment to 1961:
Jules Reichel, 502 University Avenue, Syracuse, New York

Twenty-five Year Award—Three Members

Appointment to 1963:
Ross Moore, Texas Western College, El Paso, Texas

Appointment to 1962:
Lawrence "Porky" Morgan, Chairman, Kansas State College, Manhattan, Kansas

Appointment to 1961:
Jim Stultz, Colorado A & M, Fort Collins, Colorado

Honorary Membership and Awards—Three Members

Appointment to 1963:
Al Sawdy, 602 West Wooster, Bowling Green, Ohio

Appointment to 1962:
Walter Bakke, Chairman, University of Wisconsin, Madison, Wisconsin

Appointment to 1961:
W. J. "Dutch" Luchsinger, Mississippi State College, Starkville, Mississippi

Replacements for all two year term men will be appointed to a three year term to put all committees on a properly rotating basis.

BASIC AREAS OF PREVENTION OF ATHLETIC INJURIES

ROBERT G. BRASHEAR, M.D.
Knoxville, Tenn.

In recent years much has been said in the medical literature both for and against athletics in general and football in particular. Some authors extol football as a great builder of men, mentally, morally, and physically, while others condemn football, particularly because many of the injuries sustained playing football are carried over into later life. Football, however, must be accepted as an integral part of the American way of life, just as much as the automobile. Since we must accept athletics, it behooves us to find ways and means of preventing the most serious sports injuries.

There are three basic areas of prevention that the medical profession should be aware of, as both parents and physicians of the youth of America. The first, and probably the most important, is the selection of the coach. The head coach is the number-one preventer of serious injuries in athletics. He must be a morally sound teacher and leader. He must select the athlete, put him in his proper place, and teach him the various techniques of individual and team play, pitting boys of equal athletic ability against each other. By "drive, drive, drive and drill, drill, drill" he develops the strength and stamina to outlast the opponent and the skill to outmaneuver him. He prepares facilities. He buys protective equipment. He fits the equipment to the player and teaches him how to wear it properly. In all these ways, and in many others, he is actually preventing injury.

When films showing serious athletic injuries are studied, it becomes obvious that most serious injuries happen in a moment of poor coordination. Many coaches, realizing this, spend endless hours in trying to develop coordination in their players. With junior high school football developing more generally under improving supervision and coaching, the high school and college athletes today are much better coordinated than in former years; at least, they can use their left hands. It is my firm belief that, unless a high school has sufficient funds to employ a first-class coach and to buy the best protective equipment, it should not be permitted to have football in its athletic program.

Continued on page 6

Read in the Symposium on Athletic Injuries before the Joint Meeting of the Section on General Practice, the Section on Orthopedic Surgery, and the Section on Physical Medicine at the 108th Annual Meeting of the American Medical Association, Atlantic City, June 12, 1959.

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BASIC AREAS (Continued)

The second area to be considered is that of the team physician. In my state, official regulations will not permit a football game to start until there is at least one doctor available on the field, not in the stands, and an ambulance is parked just off the field. This is considered a minimum basic requirement. When play begins, it is understood that all injuries necessitating "time-out" require removal of the injured player from the game. An immediate and complete examination of the injured athlete is made, with emphasis on the exact mechanism of injury. The attending physician makes the decision about the fitness of the player to return later in the contest.

The team doctor, the trainer, and the coaching staff form a well-coordinated team which can prevent many major injuries, particularly reinjuries. Having a physician present on the football field during a game is not sufficient. The modern concept of an athletic team doctor is that of a consulting physician who shares appropriately in organizing the athletic program. He is available not only for football games but also for consultation with the coach and trainer throughout the year. This is the ideal toward which we should work.

Making such arrangements is a real problem—a problem for organized medicine as well as for school officials. We physicians deliver all of these athletes. We treat them through infancy and childhood, seeing that they have the benefit of all the immunizing and other preventive modalities known to science. In my opinion, at this period of dangerous athletic participation we have a continuing obligation to serve and help.

The American Medical Association recognizes this problem and, through its Committee on the Medical Aspects of Sports, is actively promoting programs for safety in sports. Yet in many places coaches still find it difficult to work out arrangements for a team physician of the kind I have described. Young Americans can and do get good medical care when they are injured or ill, but medical controls are essential as an integral part of the high school athletic program.

Let me put the matter on a personal basis. I urge each of you who is interested in athletics to take a high school under your wing by acting as athletic team physician. While this does require time, with little or no financial reward, remuneration comes in many other ways. Whether you know much about athletics is a minor point. As soon as you start working with boys and with coaches you will find you are well informed about most points on which the coaches need help.

The full-time athletic trainer, it seems to me, will become indispensable to the high school. Every college athletic program of any consequence now has a full-time trainer, and this has paid dividends. The day is rapidly approaching when high schools will recognize the value of having a trainer available. The reason high schools do not have them now is that there are no funds available for a trainer's salary. While many compromises have been devised, none of them is completely satisfactory. I would like to report briefly on the National Athletic Trainers' Association, of which I am an honorary member.

The N.A.T.A., formed in 1950, is a highly ethical group which now has over 500 members, all well educated and all intensely interested in prevention of athletic injuries. They meet annually and the theme of their meeting is the free interchange of information for the prevention of athletic injuries and diseases. They are aware of the fact that they need medical help and medical supervision. They have set up a committee for professional advancement made up of 13 well-known athletic trainers and 5 physicians who are deeply concerned with athletics. They have drawn up a college curriculum, which has been accepted by their membership and has been passed on by several well-known educators. This curriculum calls for a major in physical education and a minor in another teaching area, preferably one of the basic sciences. Obviously, to a person armed with a degree of this type, a teaching assignment and accompanying salary would be available almost anywhere. Thus, high schools could obtain the services of the teacher-trainers. In addition to this degree, the N.A.T.A. plans to have each member take an additional year of study in physical therapy, and their curriculum set up on this basis is acceptable to every physical therapy school in the United States.

A board of certification of trainers is now under advisement and will undoubtedly be developed in the near future. The National Athletic Trainers' Association today is made up almost entirely of college trainers and the trainers of professional athletic teams, who are participating in the practice of medicine just as surely as are x-ray and laboratory technicians. The main difference, as I see it, is that the trainers are not under appropriate medical jurisdiction. They need medical help and supervision; they have sought it and asked for it, and yet medical recognition, it seems to me, has been slow in coming to them. I believe the development of the professional athletic trainer and this National Athletic Trainers' Association is the greatest single advance in college athletics in the past 25 years. Its benefits should be extended to high schools at the earliest possible time.

LOW BACK STRAIN

MARVIN ROBERSON, R.P.T.
Assistant Trainer, Stanford University

One of the common injuries encountered by the athletic trainer is the low back strain. This injury is usually brought about by trauma of the iliolumbar and/or the sacroiliac ligament structures. This strain is most commonly caused when the athlete:

1. Sleeps in an unsupported (soft) bed.
2. Sits in poor posture positions.
3. Changes to a new activity as from football to basketball.
4. Fails to warm up sufficiently and properly before an activity.
5. Wears improperly fitting shoes.
6. Receives a direct blow or traumatic injury in the low back area with accompanying muscle spasm.
7. Improperly picks up a heavy object.
8. Walks with more of his body weight on one leg, to reduce pain, because of a foot or ankle injury.

If an athlete comes to the training quarters complaining of a low back pain, it is the duty of the trainer to find out as much as he can about the history of the injury (what, where, when and how it happened). The trainer should then send this, and any other pertinent information, with the athlete to the team physician for an examination of the low back area. If the physician finds there are no acute or chronic malformations of the spine, he will refer the athlete back to the athletic trainer for treatment of the injury. The following program has been found most effective for treatment of this condition:

1. REMEDY – The cause of the injury should be altered, removed or stopped, if at all possible, to prevent any further harm to the low back.

Continued on page 8

LOW BACK STRAIN (Continued)

2. REST – All athletic activity should be discontinued for approximately 10 days to 2 weeks, to allow the tissue and ligamentous structures to heal properly.

3. HEAT – Diathermy or other forms of heat should be administered twice daily; diathermy preferably. Diathermy causes a deep hyperemia with an increase in arterial flow. The arterial flow brings more oxygen and nutrition to the injured area, while the venous flow carries away the products of local metabolism. Diathermy promotes the breaking up of inflammatory exudates and assists in their reabsorption, as shown by a decrease of swelling, relief of pain (due to a sedative effect on irritated sensory and motor nerves), and restoration of function to the injured area.

4. ULTRA SOUND THERAPY – The team physician's instructions should be followed very carefully when using ultra sound. The mechanical, chemical and thermal effects of ultra sound are very valuable in restoring the low back to normal function.

   The mechanical effects of ultra sound are the shaking and massage movements to the cells and tissues of the body brought about by the vibrations of the sound waves. These movements reduce the swelling of tissues caused by lymphatic stasis and remove any compression there might be on the nerve roots.

   The chemical effects are the absorption of fluids by the interstitial substance.

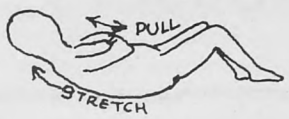
   The thermal effects are produced by internal friction of tissue caused by the vibrations of the sound waves.

5. MASSAGE – Massage is valuable when applied properly. It stimulates lymphatic absorption, preserves muscle tone and nutrition, and should be used to help relieve muscle spasm.

6. EXERCISE – Graduated exercises should be done by the athlete two to three times a day, to passively stretch the low back muscles and to actively strengthen the abdominal muscles. The following three exercises have been found to be essential in treating low back strain.

a. Pelvic Tilt – This exercise helps to form the habit of keeping the low back in a flattened position. It helps teach to recognize any deviation, from normal alignment, the pelvis might be in. This exercise is done from the supine position, with the arms folded across the chest and the knees up while the feet are flat on the floor. The hollow of the low back is then flattened by rotating the pelvis posteriorly by tightening the abdominal muscles while at the same time pinching in and tightening the gluteal muscles. Relax and repeat over again ten times.

b. Abdominals – This exercise increases the strength of the abdominal musculature. These muscles produce flexion of the spine thereby, helping to reduce the pull and spasm of the back extensors, by stretching them. This exercise is also done by lying in the supine position with the arms and legs the same as in the pelvic tilt. The head and shoulders are raised off the floor toward the knees. Relax and repeat over again ten times.



c. Sacroiliac Stretch – This exercise also tilts the pelvis posteriorly and flattens the hollow of the low back. This exercise is done by using the same body position as mentioned previously. Place the knees one at a time into each hand, then pull both knees together toward the chest. Pain tolerance of the patient should be the guide as when to stop the pull. Relax and let each foot down to the floor one at a time. Repeat this ten times.

7. POSTURE – The athlete must be be made to realize that it is a mental as well as a physical effort to overcome his posture faults. Corrective posture instructions should include both walking and sitting positions. Teach correct weight distribution (use mirrors if they are available), and get the athlete to feel relaxed and to overcome his tensions.

8. SUPPORT – The athlete should wear a brace or support for his back. Check with the team physician to be sure of having the right kind of support and that it fits properly.

Conclusion: There are many factors contributing to low back strain. Many times these factors overlap. It is the athletic trainer's duty to find all pertinent information pertaining to the injury and send it along with the athlete to the team physician. The physician will then check for any acute or chronic malformations of the spine. If there are no malformations the athlete will be referred back to the trainer for treatment. The treatment program should be closely followed out and should consist of items just outlined. After ten days, if the athlete has had no pain or swelling, he should be able to slowly resume activity again. It is important to continue using a back support up to six months after the injury.

NEW BOOKS

The Little, Brown & Co. have a new book by John M. McMennell, M.D., titled "Back Pain Diagnosis and Treatment Using Manipulative Techniques." This book is excellent reading for the Athletic Trainer who sees various back dysfunctions during the course of the year. It includes problems of the entire spine. It states methods of examination as well as correction of back pains, which are not caused by gross pathological processes.

I feel that it would be well worth the $9.50 cost for the Athletic Trainers around the country to have this book in their files. It can be purchased from the Little, Brown & Co., 34 Beacon Street, Boston 6, Massachusetts.

Larson's / TRAINER'S PRE-TAPE
SPRAY FORMULA JC-4

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- Professional
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ATHLETES

Ideal for—

- Football
- Baseball
- Hockey
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- Soccer
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Larson's Trainer's Pre-Tape, Formula JC-4, is an effective antiseptic aerosol spray which deposits a protective, quick-drying film on the skin. This film destroys most skin bacteria and permits adhesive tape to be worn continuously without irritation or discomfort to the athlete. The plastic film actually increases the adherence of the tape yet permits easy, comfortable removal, leaving a minimum of adhesive residue on the skin.

Larson's Trainer's Pre-Tape should not be confused with other tape adherents. Its many advantages make it the plastic spray dressing preferred by athletic trainers when positive bond of tape, with no accompanying dermatitis or skin irritation, is so important to the athlete's comfort.

Exclusive Advantages:

1. Reduces adhesive dermatitis and irritations
2. Creates positive bond of tape or plaster, even in shower
3. Easier removal of tape without usual discomfort
4. Antiseptic — Fungicidal
5. Can be sprayed directly on minor cuts and abrasions
6. Nontoxic when used according to directions
7. Stainless
8. No tacky residue left on skin
9. Rapid drying
10. Nonflammable

LABORATORY ANALYSIS:

Phenol Coefficient — 125
PH at 20° Centigrade — 6.45
Specific Gravity at 20° C. — 1.248
Drying Time — approximately 30 seconds

COMPOSITION: Formula JC-4

	% WT
Hexachlorophene	0.133
Dichlorophene	0.133
Film Base	49.734
Dichlorodifluoromethane	32.5
Monofluorotrichloromethane	17.5

12- and 3-ounce aerosol containers with plastic, nonclogging valve
Packed one dozen containers per carton

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U. S. A. Distributor to Surgical Trade—American Sterilizer Company, Erie, Pennsylvania
U. S. A. Distributor to Athletic and Sport Trade—Larson Laboratories, Inc., Erie, Pennsylvania

INJURIES TO THE FOOT AND ANKLE

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Ever since Adam made a successful recovery from his costectomy—removal of a rib—in the Garden of Eden, the human body has been assaulted by various and sundry external injuries. It should be the aim of every athletic program, first, to prevent injury and second, to treat an injury promptly and thoroughly. In order to prevent injury the athlete must be in good physical condition and provided with the best equipment available. From the standpoint of athletics an injured player is of no value to his team, his coach, or to himself. Therefore, the greatest concern must be with the prevention of an injury which may cause a complete disability. It should be stressed that the most important phase of prevention of injury is conditioning. Bob Shelton, of the University of Illinois, once said "Conditioning is more important than skill, because conditioning helps prevent injuries, and the best halfback in the world is of no value sitting on the bench." The conditioning program should be a year around proposition, the major portion of which must be carried on by the athlete himself. He should be given a set of exercises to be followed during the off season, and he should be encouraged to maintain, to a degree, his training program by getting plenty of rest, sleep, eating the proper food, and to avoid dissipation throughout the entire year.

The late Red Saunders made the statement that "Football is 50% ability and 60% physical condition, and mental attitude." While Tom Harmon, former Michigan All-American and sportscaster, went Red one better when he stated "That football these days is 90% mental and physical preparation." It all boils down to the axiom that a team is no better than its physical condition.

To avoid foot and ankle injuries, the rules should be to require each boy to have his angles properly wrapped or taped before every practice session or game. In a survey made at Harvard University, and reported in the Journal of the American Medical Association, in December, 1946, Dr. T. B. Quigley, James Cox, and Joseph Murphy, stated that since they had started the routine use of wraps (15 years), none of their athletes had suffered a complete ankle ligament rupture. Dr. D. F. Handley, of Bowdoin College, made the statement that "We have not lost a man for a game in 5 years, who has worn his ankle wraps correctly."

Dr. Don H. O'Donoghue, of Oklahoma City, suggests that one method that may be used, in order to determine whether or not the athletes actually have their ankles wrapped during a practice is to have them remove their shoes while the coach is talking to them on the field at the termination of practice. The players who have followed instructions and have had their ankles properly supported are permitted to go to the shower, those who have not must remain for extra work on the field. He states that this is a very effective method of assuring co-operation by the player who feels that his ankles do not need to be wrapped.

After an athlete is injured, the trainer and coach should work very closely with the team physician for the treatment of the injury. The combined objective is the complete rehabilitation of the player so that he may return to his activities with a minimal loss of time. In treating athletes, it must be kept in mind that they are entirely different than the average individual. Dr. E. T. Smith, of Dallas, Texas, lists these conditions: 1. He is, or should be, strong and in excellent physical condition. 2. He is young and his healing and recuperative power is above average. 3. He has an incentive to get well and will cooperate to the fullest extent, and will tolerate early rehabilitative procedure. Because of these factors plus the fact that he is available for regular treatments at frequent intervals, we are able, generally to get an athlete back into competition in a much shorter period of time than the average workman is able to return to his job.

The coach will note in the long run, that prompt treatment restores the player more rapidly, and he knows that a sound substitute is a more effective player than an injured star. So rehabilitation of the star is worth a period away from the game.

One of the most frequent injuries to athletes is the sprained ankle. As we have noted earlier, carefully taping, and/or bandaging the ankle will serve to minimize the injury and will usually prevent complete rupture of the ligaments or dislocation of the ankle. The anatomical structure of the ankle is such that it is vulnerable to inversion injuries resulting in damage to the lateral ligaments. In order to understand sprains and fractures about the ankle, it is imperative that one have a detailed knowledge of the interosseous or bony relationships as well as the ligamentous attachments. The osseous structure of the ankle consists of the lower end of the tibia which is moderately enlarged and projects downward as the internal malleolus. The tip of the internal malleolus is roughened for the attachment of the internal lateral ligament of the ankle joint, and its deep surface is covered with cartilage for articulation with the astragalas or the talus.

The fibula, which is the smaller of the two bones, is subcutaneous in its lower one-third and its lower extremity is enlarged and projected downward as the prominent external malleolus. The surface of the external malleolus is rounded and its tip lies about one-half inch below and posterior to that of the internal malleolus. Its posterior border is grooved for the peroneal tendons and its tip and anterior border is roughened for the attachment of the external lateral ligaments. Its deeper or inner surface presents an articular facet for the lateral body of the talus.

The talus, or the key bone of the ankle joints, is an irregular bone, quadrilateral in shape which fits in the mortise of the malleolii, and the inferior articular surface of the tibia. It receives the body weight from the tibia and transmits it to the other tarsal bones. The superior surface is flattened from side to side, convex from before backward and is covered with cartilage. The inferior surface presents articulating facets for the os calcis and a central roughened area for the interosseous ligaments. The short thick neck projects downward and inward to terminate in a rounded head which is covered with cartilage and articulates with the scaphoid or navicular bone.

The lower ends of the tibia and fibula are firmly united by strong interosseous and anterior and posterior transverse ligaments and the two malleolii project downward from the inferior articular surface of the tibia to form a deep groove or mortise into which the body of the talus fits. This mortising of the body of the talus into the groove formed by the malleolii is the ankle joint. The groove is slightly wider in front than behind. Thus, a forward thrust of the leg on the foot tends to jam the astragalas into the mortise.

The joint is surrounded by a rather thin capsule which is attached around the articular margin of the involved bones.

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The contours of the bones are such that the ankle joint is very strong mechanically and this strength is increased by the addition of very strong lateral ligaments which anchor the foot to the leg. The internal lateral or deltoid ligament is a heavy mass of fibers which spread out fan-like, from the internal malleolus to be attached to the os calcis, talus, and the scaphoid. The external lateral ligament is much weaker. It consists of three diverging bands which arise from the external malleolus. The middle band is inserted into the os calcis and the anterior and posterior are attached to the talus.

Due to the fact that the articulating surfaces of the tibia and talus are approximately flat in the lateral plane and the body of the talus is grasped by the malleolii, there is practically no movement in the ankle in the lateral plane, and movement is limited to the anterioposterior plane. Lateral movement of the foot on the leg takes place at the subtalor joint, that is the joint between the talus and the calcaneous. The movements in the anterioposterior plane are hinge-like in character, the talus rotating in the concave articular surface of the tibia as the ligaments prevent gliding of the articular surfaces. The range of movement varies in different individuals, but the normal ankle may be expected to permit dorsal flexion of the foot to about 70 degrees, and plantar flexion to about 140 degrees.

The ankle and knee are the joints most prone to ligamentous sprains, and from the trainer's and physician's viewpoint, such disorders have the greatest practical significance. For the understanding of sprains, detailed knowledge is necessary of the ligamentous attachments.

More important in this respect is the interosseous ligament and membrane and the anterior and posterior tibio-fibular ligaments flanking the capsule of the inferior tibio-fibular articulation. These fibrous bands together with the external and internal collateral ligaments maintain the integrity of the ankle mortise. The interosseous ligament binds the lower end of the tibia and fibula together, and with the anterior and posterior tibio-fibular ligaments, stabilizes the inferior tibio-fibular junction.

The fibers of the interosseous ligament run from above outward and downward from tibia to fibula, and this ligament is continuous above with the interosseous membrane whose fibers run in the same general direction. The interosseous membrane functions to prevent bending of the fibula when under strain.

In a separation of the tibio-fibular syndesmosis, there is a tear of the interosseous ligament and membrane which allows a spreading of the ankle mortise and usually a lateral displacement of the astragalas and produces an unstable joint. The force that ruptures the interosseous membrane and ligament is due to a sudden eversion or abduction. When the deforming force is carried to the extremity, there is an associated rupture of the interosseous ligament and membrane with fracture of the fibula, three or more inches from its tip.

The external collateral ligament is most frequently involved in soft tissue disorders of the ankle. This ligament consists of three distinct bands: 1. The anterior talofibular ligament passing from the tip of the fibula to the base of the neck of the talus on its lateral aspect. 2. The calcaneo fibular ligament extending downward to slightly posteriorly to the calcaneous. 3. The posterior talofibular

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ligament passing horizontally backward to insert into the tubercle of the talus. The two anterior ligaments, that is the talofibular and the calcaneofibular, are the bands that are torn by forced inversion. The rupture is most commonly at the fibular attachment and the tip of the external malleolus may be avulsed or broken at the time of the injury. This injury permits subluxation of the ankle and if neglected, gives rise to recurring subluxations or a permanent weakness of the ankle joint which is conducive to frequent sprains.

The deltoid ligament is really the strong fibers of the medial portion of the articular capsule of the ankle joint. Its fibers course from the internal malleolus to the navicular and to the central and posterior portion of the talus. This ligament is ruptured by forces of abduction or external rotation, and the tear usually takes place at its tibial attachment. The insertion of the ligament to the tibial malleolus is so strong that avulsion of the internal malleolus is the rule.

A basic simple comprehension of the muscle balance of the foot is imperative to the understanding of injuries about the foot and ankle, however, this will be given to you in a special discussion of the Kinesiology of the Foot and Ankle.

When an athlete injures his foot or ankle, he usually remains on the ground clutching his foot and complaining of pain in his leg and foot. The trainer is usually the first to see him and he must decide if it is a simple muscle cramp or a major ligament injury. In order to be on the safe side, the trainer should remove the player from the game, take him to the sidelines where he can be examined leisurely. If he is able to walk off the field without assistance, one can usually predict that the sprain is of a minor nature. However, if aid is required in removing the player, one should be suspicious of a major sprain or possibly a fracture. After the foot and ankle have been exposed, the ankle region is observed to note the presence of general or localized swelling. The areas of the malleolii and tarsal bones are palpated to localize the points of maximum tenderness, in order to pinpoint ligamentous injury.

The high percentage of sprains will be of the inversion type, which will produce an injury to the anterior middle fasciculis of the external collateral ligament, and these areas will show evidences of localized swelling soon after the injury has occurred. The foot is moved on the ankle into external rotation, internal rotation, abduction, adduction, planta and dorsal flexion to bring out the movements that cause pain. This information is correlated with the findings on palpation.

Early massive swelling of the entire foot or a disalignment of the foot and ankle, leads one to conclude that there has been a massive tearing of the ligaments and probably a fracture or dislocation. Very little manipulation should be done to this type of foot in examining it, in order not to produce additional damage to the tissues. However, when one sees a deformed extremity immediately after the injury, it is often possible to produce a reduction of the fragments by simply pulling distalward in the long axis of the tibia. Of course, the area is first inspected to be sure that there is not a compound fracture. Any compound fracture should be left in the position that it is found, in order, not to further contaminate the wound.

O'Donoghue, has classified sprains into mild, moderate and severe. A milk ankle sprain is one in which there has been a partial tear of a portion of the ligament, but without actually weakening the involved structures. The symptoms are minimal and swelling is slight. Tenderness can be easily localized on palpation. There is little disability and the player will be able to walk around and exercise the foot. Careful examination will reveal no abnormal motion, but the pain can be increased by reproducing the force of the sprain which is usually adducting or inverting the foot. X-ray of the foot and ankle is negative. This is the case where no extensive treatment is necessary. If there is local swelling and local tenderness, the doctor can inject the area with Novocain and Hyaluronidase, to defuse the hematoma. Hyaluronidase, is a drug that increases the permeability of the soft tissues, and allows the blood and lymph, that has accumulated about the site of the injury, to be dispersed and absorbed within a few hours. The ankle can be effectively strapped and early activity is permitted.

There are two generally accepted methods of strapping an ankle, one is the so called stirrup strapping, the second is the Gibney, or basketweave splint. While the adhesive is being applied, the patient sits on a table and holds the foot in a position of dorsiflexion and eversion. This can be accomplished by running a strip of adhesive around the ball of the foot from within outward and having the patient hold this adhesive, thus pulling the foot upward and outward from a point at about the head of the fifth metatarsal bone. In the stirrup strapping, tape two inches wide is used beginning on the innerside of the ankle and pulling the heel upward and outward and progressing up to the heads of the metatarsals. The ends of the two inch strips are split and torn as far as necessary to permit them to lie flat on the skin. When the stirrup strapping is completed, cross strips are applied over the lower third of the leg.

The author prefers the basketweave splint, which is applied as follows: By using one inch adhesive tape the first strip is begun on the innerside of the leg about 6 or 8 inches above the ankle, passed down under the heel and up the outer side of the leg. The second strip is begun on the innerside of the foot, carried back around the heel, and pulled forward over the first strip and parallel with the sole of the lateral side of the forefoot. The third strip is placed slightly anterior to and parallel with the first vertical strip and overlapping the second horizontal strip. In this manner, the strapping is continued forward on the foot and upward on the leg by means of alternating vertical and horizontal strips. As the vertical strips reach the front of the leg, they curve around the lower leg on either side. In this way the entire region of the ankle and foot, are encased in a basketlike adhesive splint. The horizontal strips are continued up the leg to the top of the vertical strips and distal over the foot to the base of the metatarsal heads. Of course, prior to any strapping, the foot and leg should be shaved and the area to be strapped is painted with either Tincture of Benzoine, 5% Mercurochrome or Merthiolate, to prevent adhesive dermatitis. During the strapping, it is important that the foot be held in one position until the strapping is complete. After the strapping has been completed, it is covered with a gauze bandage, and the patient is permitted to walk. It is advisable to elevate the outer border of the heel of the shoe 3/16 of an inch, in order to maintain the foot in a position of eversion, and to take the strain off of the torn ligament. Adequate strapping should be maintained until the tenderness has completely disappeared. This simple type of sprain presents no problem once diagnosed. The big problem is to be sure that it is a mild sprain and that you are

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not treating a severe injury while laboring under the misapprehension that it is of little consequence.

The second classification of sprain is a moderate ankle sprain, in which there is an actual tearing of a portion of the ligament, that is the tear is incomplete. The tear may include a single fasciculis or several fasciculii of the ligament. The history will be, usually that there has been a sharp inversion of the ankle, and the pain was immediate and severe, and the player will immediately fall to the ground. He may be able to stand with his weight on the foot, but any effort to move the ankle will be quite painful, particularly if the foot is pulled into inversion and plantar flexion. Swelling occurs immediately, and is severe since the torn ligaments allows the blood to escape into the soft tissues. Soon the vessel spasm and edema spread throughout the area of tenderness so that the whole side of the ankle and foot are painful. The location of the sprain can be determined early by pinpoint location of the tenderness. This is not possible after a few hours. This type of injury should always be X-rayed since there is a possibility that there may be a major fracture, or a sprain fracture, wherein a portion of the bone has been torn off with the ligament. We believe that all such injuries should be X-rayed since it is better to err on the safe side than to permit a fracture to go undetected for a number of days.

Treatment of a moderate ankle sprain should go far beyond that of a mild sprain, where the aim is largely relief of the symptoms. There are two elements of treatment, one is to relieve the patient of the present injury, and the second is to prevent further tearing, or a complete tearing of the ligament. If there is a doctor present, immediate injection of the area with Novocain and Hyaluronidase is advisable, however, if the player has to be referred ot the hospital, it is advisable for the trainer to place the foot and ankle in a compression bandage while the transfer is being made. A very satisfactory compression bandage can be made by placing a roll of cotton approximately 1 to 1½ inches thick from the base of the toes to just below the knee and applying an Ace or elastic bandage firmly over the cotton. This is done for two reasons, one is that it produces an even compression over the area and prevents further loss of blood, and it also acts very effectively as a splint while the transportation is being made.

Local treatment in such a case should *not* be followed by early ambulation. The treatment of choice of a moderate sprain is to have the doctor infiltrate the area with Novocain and Hyaluronidase, bandage the foot and ankle with a compression bandage, care being taken not to bandage it too tightly, and encase the entire foot and ankle in ice for a period of 12 to 24 hours. The ice should be placed directly on the foot and ankle and not in an ice bag. The injection and packing in ice serves two purposes, namely the Novocain relieves the pain, the Hyaluronidase permits diffusion of the blood and the ice packs prevent further hemorrhage. The ice packs will also serve to control the pain. After 24 hours, the cold packs should be changed to hot, moist packs in order to further reduce the swelling. After the swelling has been sufficiently reduced a short walking cast should be applied. The point might be argued that placing the leg in a cast is unnecessarily disabling. However, if the individual has had a bad sprain, the disability is essentially complete for a period of ten days to two weeks, and requires the use of crutches. It is our experience that the walking cast enables the patient to get around more freely, stimulates circulation and is less painful. No amount of strapping or encouragement to function is going to actually result in functioning to the extent of participation in sports. Complete rest for a short period of time will be well worthwhile, not only in shortening the period of mobility, but in diminishing the chance of any permanent disability.

After the cast is removed, the ankle should be strapped as in the mild sprain. Very careful protective strapping should be continued until all of the symptoms have completely subsided.

The third class of ankle injuries, is the severe ankle sprain; this consists of an injury, in which there has been a complete tearing of the latera ligament. The findings in such a case will be essentially that of the more extreme type of moderate sprain, that is tenderness, swelling, and pain on reproduction of the force of the injury, all of these symptoms will be more severe. Disability will be immediate. If the examination is made early, abnormal motion can be demonstrated. X-rays of the foot held in inversion, if the ligament is completely torn, will show an abnormal degree of motion, in that there will be a rocking open of the lateral part of the ankle.

Fortunately, this degree of tear of the ankle is not frequent in athletes, and the ankle strapping or wrapping serves to prevent the extreme displacement that causes this type of injury. However, it does happen at times with a complete tearing away of the ankle strapping or wraps.

The treatment of severe ankle sprain is not unlike that of the treatment of a moderate sprain, except that it takes a longer period of time for recovery. When a diagnosis of complete tear is made, immobilization in a walking cast should be at least three weeks, followed by strapping until all signs of tenderness and weakness have disappeared.

The eversion injury to an ankle occurs not infrequently, particularly in football players. The force of the injury is usually when a player is tackled, at the moment the weight is borne on the foot and the cleats are in the dirt. The impact of the opposing player forces the foot into acute eversion and produces a separation of the ankle mortise by virtue of the fibula moving away from the tibia, the talus being displaced laterally on the internal malleolus and the tibia. The disability is immediate and the pain is severe. Swelling occurs very quickly. One usually notices a distortion of the ankle, and the displacement of the talus is easily detected by X-ray. The resultant pathology may be a tear of the internal collateral ligament and a diastasis of the ankle joint; that is, a tearing of the tibiofibular ligament, which allows a spreading of the ankle mortise, or the force may be so great that it forces the talus lateralward to the extent that a fracture occurs in the lateral malleolus. This severe type of injury presents a very serious problem for treatment, and we concur in O'Donoghue's opinion that the best treatment is early and complete repair of the involved ligament. The decision for surgical repair should be made promptly and carried out at once. This will not only shorten the period of disability but it will insure a more stable ankle and a shorter period of disability. If there is a diastasis or separation of the ankle joint the deltoid ligament should be repaired surgically and a course threaded screw should be placed through the fibula into the tibia, in order to maintain close apposition to the tibia. This will allow the tibiofigular ligament to heal satisfactorily and prevent a later spreading of the ankle mortise. If the distal end of the fibula is broken, we feel that a short intermedullary wire will maintain the position of the fibula and the ligament on the lateral side of the foot, in addition to a

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surgical repair of the deltoid ligament on the medial side will give a very satisfactory result. If a screw or intermedullary wire is used they should later be removed, and this can be done with very little effort and disability under local anesthesia. Should nonsurgical treatment be elected in these cases, the early treatment should be the same as that in moderate and severe sprains until the swelling is controlled, then, if the fibula is fractured, accurate closed reduction should be carried out and the foot placed in a cast and kept until healing has occurred. It will be necessary to wear the cast considerably longer, and to keep the strapping on the ankle a long period in these cases of complete severance of the ligaments. In other words the disability lasts 8 to 12 weeks.

In all cases of ankle injuries rehabilitation is an important factor. In the mild type of sprain the rehabilitation problem is minor. The patient continues walking and he is encouraged to do quadriceps exercises, to prevent atrophy of the quadriceps muscle. In the more severe type of ankle injuries, the period of rehabilitation will depend upon the period of immobilization. If the patient is wearing a walking cast quadriceps exercises are readily done in the cast, the cast providing the necessary weight for resistance to the muscles. When the cast is removed, rehabilitation can be concentrated on the ankle and should consist of resistive exercises to the limit of tolerance. The patient should have daily heat, in the form of whirlpool baths, and massage, in order to stimulate circulation and hasten the absorption of the fibrous tissue. It has often been said that a sprain is worse than a fracture, the reason for this being that the sprains are inadequately treated, wherein fractures are treated properly and adequately. One often hears a patient say that they have a weak ankle following a severe sprain. This indicates that the sprain was not properly treated and there is actually a relaxation of the ligaments about the ankle. One point I would like to make in the treatment of the severe sprain or the sprain fracture is that after the immobilization period it is well to have the patient wear an elastic anklet until the leg has ceased to swell.

There are certain attendant soft tissue lesions that occur in athletes that should be noted. A sudden forced effort of planter flexion while the foot is supporting the body weight, with or without a super-added load, may cause either rupture of the plantaris or a rupture of the tendoachilles. The plantaris rupture is more frequent in the young athlete at the beginning of the spring, jump or dive. There is a sudden pain in the calf, a distinct feeling of something giving way, and sometimes an audible snap. The calf becomes swollen, hard and tender. Walking may be difficult. A "Charley horse" is the usual lay diagnosis. The treatment consists of elevating the heel of the shoe in order to diminish the tension in the calf when walking or standing, and a firm elastic bandage of the limb from the foot to below the knee. Heat, in the form of whirlpool baths, massage and active exercises will accelerate the recovery after the first forty-eight hours. There is no contraindication to ambulation or weight bearing once the discomfort lessens. It usually requires from ten to twenty-one days for the condition to clear up.

The tendoachilles, which is the strongest in the body, ruptures only on a sudden forcible effort, and only after undergoing degenerative changes from a specific condition, such as an infection. The history is that of a sudden effort, which is accompanied by a snap, with pain in the calf, after which the foot becomes useless. Planter flexion of the foot is impossible. Our most recent case occurred in a basketball player while practicing on a hardwood court. He stated that in the act of throwing the ball toward the basket he felt a sudden pain in his heel, as if someone had struck him with a pipe. He looked around to see if someone had struck him and he found that he was all alone at the end of the court.

Examination of such a patient in the prone position discloses a loss of the normal outline of the Achilles tendon and, with the foot progressively dorsiflexed, the sulcus at the site of the rupture is palpable. Sometimes the rupture occurs at the musculotendinous junction, and then the diagnosis is more difficult. At other times avulsion of the calcaneous insertion occurs. Typically, however, the rupture usually leaves a part of the tendon attached to the bone. The treatment is surgical, followed by a cast from the base of the toes to below the knee, with the foot at 90 to 100 degrees flexion. At one time we placed the foot in extreme planter flexion, however, we found that there was a contracture of the calf muscles, and this necessitated a prolonged rehabilitation. Plaster fixation is continued for a period of six weeks. During this time ambulation is permitted by placing a walking heel on the cast. Following removal of the cast an elastic bandage is used and heat, massage and active exercises are instituted. Return to violent exercise, such as acrobatic work, is delayed for four to six months. The shoe heel is elevated but is gradually lowered over several weeks time.

A condition that is frequently seen in athletes is a recurrent dislocation of the peroneal tendon. The tendons of the peroneous longus and brevis pass behind the fibular malleolus in a bony groove of varying depth. Their displacement in the different positions of the foot is prevented by the superior and inferior peroneal retinacula or ligament. A stretching or rupturing of the superior retinaculum results from a forced eversion while the foot is in planter flexion. This rupture permits the peroneal tendon to slip out of the bony groove into the lateral of the external malleolus. Should the initial lesion remain undiagnosed and untreated the tendency to recurrent dislocation of the tendon persists as a painful syndrome, which occurs on a sudden eversion and plantar flexion of the foot. The primary treatment, when the condition occurs, consists of replacing the tendon and firmly bandaging the foot, so as to limit eversion and plantar flexion of the foot for three or four weeks. When the condition is a recurrent disorder and the disability is sufficiently severe, a reconstruction of the superior retinaculum by using a fascia or a strip of tendon from the peroneous longus or brevis tendon gives an excellent result.

The peroneous brevis tendon is inserted on the prominent tubercle located at the base of the fifth metatarsal, on the outer border of the foot. Forcible inversion of the foot against resistance may avulse this tubercle. The diagnosis will be made by the history of a sudden strain, followed by local tenderness, swelling and pain at the base of the fifth metatarsal. Radiological examination will demonstrate the fracture and extent of the separation.

The treatment when displacement is absent is immobilization by strapping with adhesive tape. When displacement is present, as indicated by a definite gap shown on the x-ray, a below the knee walking cast for three to four weeks gives symptomatic relief and promotes recovery.

Two painful conditions of tendons should be mentioned: the achillodynia and tenosynovitis of the tibialis anterior. They correspond to a similar disorder of the lower forearm where the tendons of the abductor pollicus longus

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and the extensor pollicus brevis cross the radial extensors. The condition is a tenosynovitis, or inflammation of the tendon sheathe, which is produced by such things as overuse, pressure or friction. In achillodynia, which is a painful Achilles tendon, the synovial membrane, which surrounds the tendoachilles, becomes inflamed. Local tenderness is found on pressure and there is pain with crepitus on dorsal and plantar flexion.

Relief is obtained by elevating the heel of the shoe three-sixteenth to five-sixteenth inch, and injecting 25 mgm. or 1 c.c. of Hydrocortone into the tendon sheathe. A firm bandage is applied to the ankle and foot over two strips of felt, placed one on each side of the tendon. Daily treatments with hot packs and diathermy is soothing and hastens recovery.

With tenosynovitis of the tibialis anterior, the patient complains of pain on the anterior aspect of the lower third of the leg. Examination will localize the discomfort of the anterior tibial compartment, where the tibialis anterior muscle lies against the anterior border of the tibia. On active dorsiflexion and inversion of the foot the discomfort is aggravated. A fine crepitus over the tendon is often discernable during these movements. This condition frequently occurs in track athletes.

The treatment of this condition consists of a firm bandaging of the foot and leg with two strips of felt, approximately 1½ x ¼ x 4 inches in length, one strip placed on the medial aspect just back of the tender area and the other placed on the lateral aspect of the leg, and a compression bandage applied. The tendon sheathe is injected with 25 mgm. of Hydrocortone or one of the Cortisone derivaties, followed by the use of heat, massage and local counter irritants.

A certain number of athletes, particularly track athletes, will develop pain in the forefoot beneath the metatarsal heads, or the so-called Morton's toes or flattening of the transverse arch at the level of the ball of the foot, and is designated as metatarsalgia.

Normally the muscular balance is such that the weight is carried from the heel to the outer border of the foot, thence to the ball of the great toe. Propulsion forward is then given by the plantar flexion of the proximal phalanx of the great toe. If relaxation or dysfunction of the interosseous and lumbrical muscles occur the forefoot splays and the proximal phalanges of the four lateral toes are dorsiflexed. The second, third and fourth metatarsal heads are depressed and in time hypertrophy of the soft tissues over the plantar aspect of these joints produce a convex surface which, with excessive use, becomes calloused and painful. Running on the toes aggravates this disorder.

The patient complains of increasing pain in the forefoot, often localized in the area of the callous, frequently radiating up the muscles of the leg. The metatarsalgia is aggravated by wearing shoes, particularly if the heel is of abnormal height, and the complaints make it increasingly difficult in securing a satisfactorily fitting shoe.

The treatment is directed to minimizing the weight bearing during the acute phase. A felt metatarsal pad, cut in the shape of a rectangle, with a triangle on one end, that is approximately 1½ inches long from the end of the triangle to the base of the rectangle and ¾th inch thick. We like to use felt that has adhesive on one side, which permits the felt to remain in place. It is placed with the pointed triangle toward the heel, the flattened surface just behind the base of the second and third metatarsal heads. This is strapped in place by three or four one inch adhesive straps being placed around the foot, holding the foot in such a manner that the foot does not splay or spread when weight is borne on the forefoot. We recommend a metatarsal bar on the shoe, with the elevation coming just behind the metatarsal heads. The dimensions are usually approximately 1½ inches wide and built up so that ¼ inch elevation is present just behind the metatarsal heads. The patient is given faradic foot baths to activate the small intrinsic muscles. The joints are mobilized by manipulation, and active exercises are prescribed which will plantar flex the proximal phalanges of the second, third, fourth and fifth toes, while rising on the toes with the foot inverted.

In closing, may I say that it is impossible in a short period of time to adequately discuss injuries and treatment of the foot and ankle. I have tried not to use too many scientific terms in presenting this subject to you. I trust that I have stressed the importance of recognition and treatment of certain foot and ankle conditions in such a manner that it will help you in your very important position of caring for a very select group of young people.

I would like to compliment the coaches, trainers and the personnel of the schools in general in their sincere effort to preserve and maintain the health of all who participate in the field of sports. Finally, I would like to pay tribute to our coaches, trainers and their staff here at our own Ohio State University. They have shown at all times nothing but the greatest interest in the welfare of the individual members of all sports activity. I have never at any time known of an instance where a coach has willingly allowed a member of his squad to participate in any activity that would be detrimental to his physical well being. The training department under Ernie Biggs is truly an inspiration. I have often thought that because of his astuteness in correctly diagnosing pathological conditions, and his ability to devise means to prevent injury to an athlete should have been directed toward a degree in medicine, with the specialty of orthopedic surgery. At any rate, medicine's loss is the athletic department of Ohio State University's gain in preserving the physical condition of our youth, which is vital to the welfare of our nation.

VARSITY FOOTBALL INJURIES[1]

STEPHEN E. REID, M.D.
and VERNER SWAN, M.D.

A study was made of the injuries incurred in varsity football during the past two years at Northwestern University. The number of injuries, 120, seems large but when one considers that football is a contact sport and involves large numbers of players receiving body contact for extended periods, the number is relatively small. During these two years approximately 70 players were engaged in 225 practice sessions and games accounting for 15,750 player-days. The bulk of injuries occur in the early days of spring practice and in the fall before the first game. After the players reach their top condition, the number of injuries shows a decided decline. It has been observed also that the number of injuries during this period has been smaller than in previous years.[2] Many reasons can be given for this. The advent of the "Platoon System" with free substitution of players allows the coach to relieve men before they tire. Most injuries occur when the player tires or relaxes. Proper protective equipment reduces the chance of injury. Thigh guards which formerly were fixed to the pants slipped around and were

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VARSITY (Continued)

often ineffective. In the past several years, these pads have been taped directly to the thigh and are more secure. Headgear has become stronger and lighter. Occasionally, a player feels that his equipment slows him up and attempts to forget some of his padding. No player is allowed to play without full equipment. A man who is not injured playing without a headgear has played a poor game. More stringent rules in recent years have made football safer. The abandoning of the "flying tackle," ruling a ball carrier down when his knee touches the ground, and penalties for piling on after the whistle has been blown have all helped to prevent injuries. This Fall the rules will be more strict.

The most common injury, and our greatest cause for concern, involves the knee joint. Years ago, the ankle was the more frequently injured, but since ankle taping was instituted, this joint is not commonly hurt. Every player has his ankles strapped before competing. This quite adequately protects the ankle but causes the knee to receive the entire impact of the blow. The knee, however, cannot be adequately protected without restricting motion, regardless of the brace.

It was observed that once a knee is injured, in practically all cases, it is subject to recurrences. A good share of our bad knees were injured previously in high school football. The disability following a knee injury results in a weakness of the quadriceps muscle group. By favoring his knee, the player loses the conditioning he has developed in this muscle group. The power of this muscle, which is the greatest protection to the knee, when lost, allows any blow to the knee to be taken by the knee ligaments. The knee then is more easily injured, causing more disability and resulting in more quadriceps atrophy. We have seen a two-inch difference in circumferential measurement between the two thighs in a recurrent knee injury.

A case in point is that of a player who injured his knee several times throughout the season. He continued to play football and to maintain the tone in the quadriceps muscle. On examination at the conclusion of the season, this player had a perfectly stable knee joint. An arthrotomy was done and, in addition to a torn lateral semilunar cartilage, there was a torn anterior cruciate and a partial tear of the medial collateral ligaments. The stability of this knee was maintained by the well-developed quadriceps muscle.

Recently we instituted quadriceps exercises for all knee injuries. The power in these knees is gradually increased until the players are able to extend the knee against a resistance of 100 pounds.

The head injury, fortunately, has not been frequent. On two occasions, players have been hospitalized for observation, but neither case was serious. One player was barred from football because of frequent, though mild, head injuries.

The future of many football players in coaaching or in professional competition depends on their performance while in college football. An injury that takes a boy out of play reduces his chance for future recognition. With this in mind, some players will minimize their injuries and one must be alert to this problem.

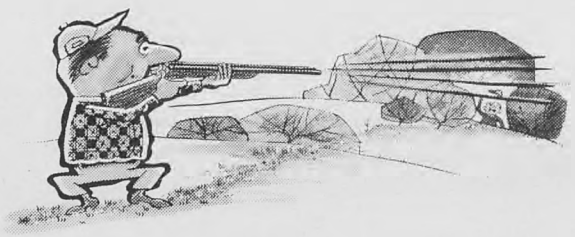
It will be interesting to see what effect de-emphasis of football has on injuries. Certainly abolishing spring football would not make the game safer. The muscle tone required in football is entirely different from swimming. If a boy plays no football from one season to the next, there will be a great amount of conditioning to do in a short period and, hence, more injuries.

TABLE OF INJURIES

Ankle	19
Back	5
Contusions	5
Elbow	6
Finger	5
Head	4
Knee	34
Lacerations	11
Nose	7
Shoulder	12
Rib Cage	12
Total	120

[1]From the Student Health Service, Northwestern University, and the Department of Surgery, Northwestern University Medical School. Received for publication, September 11, 1952.

[2]Hobart, Marcus H.: Athletic Injuries, J.A.M.A., August 15, 1936.



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June, 1960

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