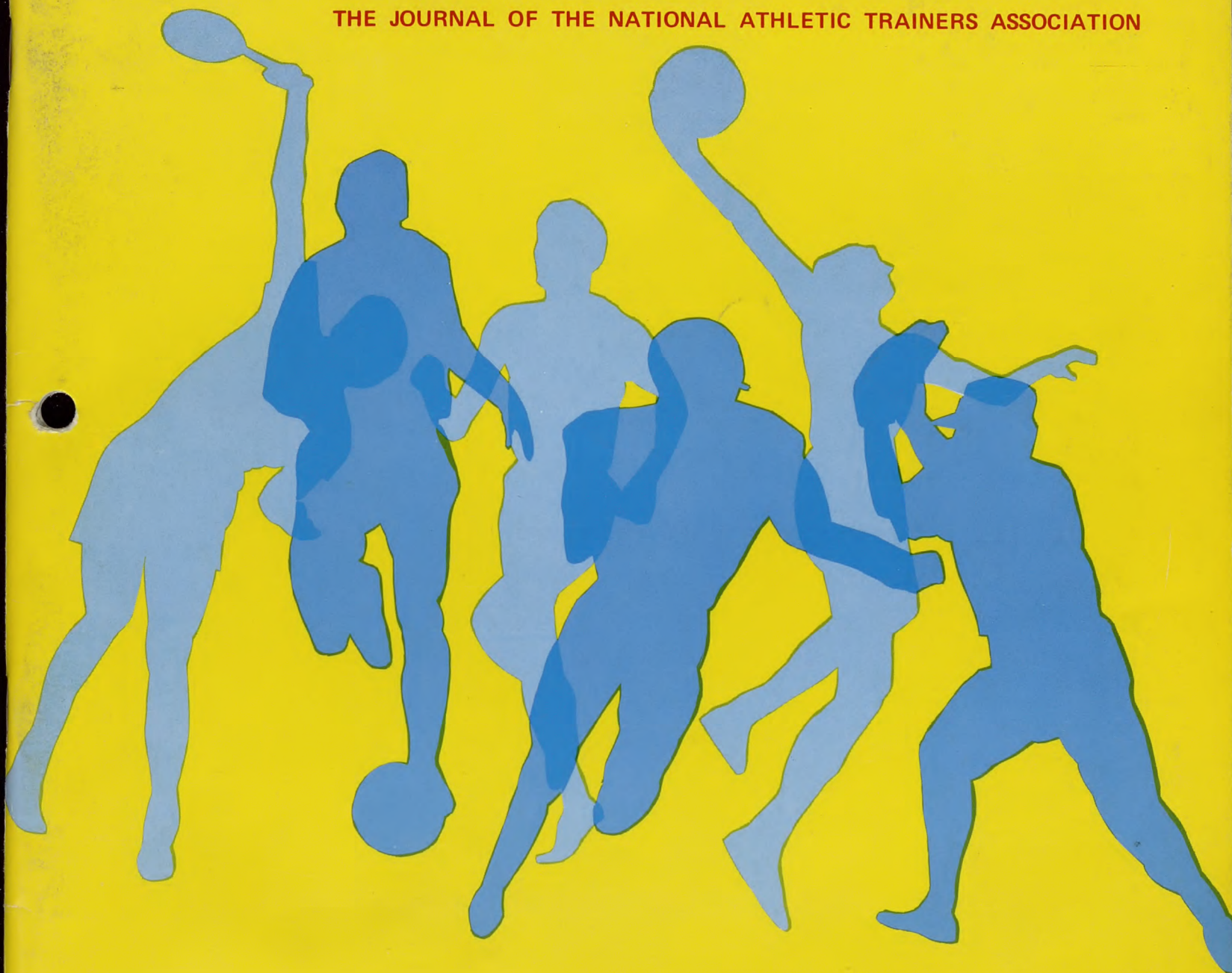




ATHLETIC TRAINING

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION



IN THIS ISSUE:

Summertime Employment for the Athletic Trainer
Injuries to the Acromioclavicular Joint
Schering Symposium: Internal Derangement of the Knee
Esophageal Airway - An Alternative to Mouth-To-Mouth
NATA Continuing Education Program

**VOLUME 14
NUMBER 1
SPRING 1979**

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THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

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NUMBER 1

SPRING 1979

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FROM THE PRESIDENT



*Bill Chambers with wife Elise
and children Camie, 13 and Billy, 12.*

Dear N.A.T.A. Members:

I hope all of you are making plans to attend our Annual Meeting and Clinical Symposium in St. Louis. District Nine is in charge this year and they have arranged an excellent clinical program. Also, our meeting continues to prove to be popular with manufacturers in that our exhibit space is sold out again and there is a waiting list. I'm sure each of you will find something of interest in St. Louis so make plans to attend.

The Professional Education Committee had another outstanding meeting in Nashville. Hopefully they will be able to expand this and perhaps have meetings in other locations. With the growth of our association, this committee and their contributions are playing an important role in the advancement of our profession.

The N.A.T.A. taskforce met again with the APTA taskforce in February. The results of the meeting will be presented in St. Louis. At that time, each District Director will be given all pertinent information for discussions at the district meetings.

A lot of concern has been expressed about our relations with the U.S.O.C. and the Athletic Trainer selections for the upcoming Pan Am and Olympic games. For the past two years there has been a U.S.O.C. representative at our board meetings and we were encouraged to follow the selection procedures we worked out. The representative also asked us to help them get supplies by contacting various manufacturers on their behalf.

We were given dates to follow in regard to when names should be turned in for consideration. It behooves us as to why the U.S.O.C. did not honor their statement in reference to dates when they took it upon themselves to name individuals for the Pan Am Games. I do not want to de-emphasize the selection of these individuals as they are all certified members of our Association. However, I feel it's important that our entire membership be made aware of what's happened.

Again, I hope you will be able to come to St. Louis. Feel free to let your officers know how we can best serve our Association.

Sincerely,

William H. Chambers
President

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Rod Compton A.T., C.
EAST CAROLINA UNIVERSITY

terested in helping John should contact him at the following address:

John Wells, A.T., C.
Athletic Department
Mars Hill College
Mars Hill, NC 28754

Student Writing Contest

Don't forget to encourage student members to become involved by entering the student writing contest. Complete details are available elsewhere in this issue of the Journal.

Journal Quiz?

It has been suggested that the Journal might provide quizzes based on one or more of the articles in each issue. The quizzes might be sent in for grading and perhaps continuing education credit. However, this is a large task in making up the quizzes alone, not to mention receiving, grading and returning results to those involved.

We would like to first get an idea of how many are interested in such a project. If you are interested in such a program drop me a card, note, or letter giving me your thoughts on:

1. Would you use a quiz program but not require it to be mailed in and graded?
2. Would you take the quiz and mail it in for credit?
3. Should there be C.E.U. credit involved in such a program?
4. Should this program be offered in each issue?
5. Would you like to be involved in making up quiz questions; receiving, grading, and returning the quizzes; and/or keeping tally of credits for the quizzes?

Keep 'em Healthy!

Rod Compton

Journal Deadline Change

The last listing of Journal deadlines gave the wrong deadline dates for the Winter issue. The correct dates are listed in this issue. Please put these deadlines and addresses in a convenient reference place.

Proceedings Available

Bud Miller has a few copies of the 1978 Professional Preparation Conference available for \$10.00 each. This 144 page publication of the N.A.T.A. Professional Education Committee is the result of last year's Nashville meeting, January 6-8.

It has much educational and practical information in it that trainers will find useful. There are 0.5 Continuing Education Units available for purchasing this publication. Send your order and payment to:

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Convention Dates

Please take note of the new dates for the N.A.T.A. Annual Meeting and Clinical Symposium to be held in St. Louis. The dates are June 16-20, 1979.

Call for Abstract Writers

John Wells, who handles the "Abstracts" section of our Journal, is asking for help from the membership in preparing abstracts. Anyone in-

JOURNAL DEADLINES

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

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

Rod Compton, ATC
Sports Medicine Division
East Carolina University
Greenville, NC 27834

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

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

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

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

Fall Issue	July 1
Winter Issue	October 1
Spring Issue	January 1
Summer Issue	March 1

Articles must be sent to:

Clint Thompson, ATC
Jenison Gym
Michigan State University
East Lansing, Michigan 48824

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

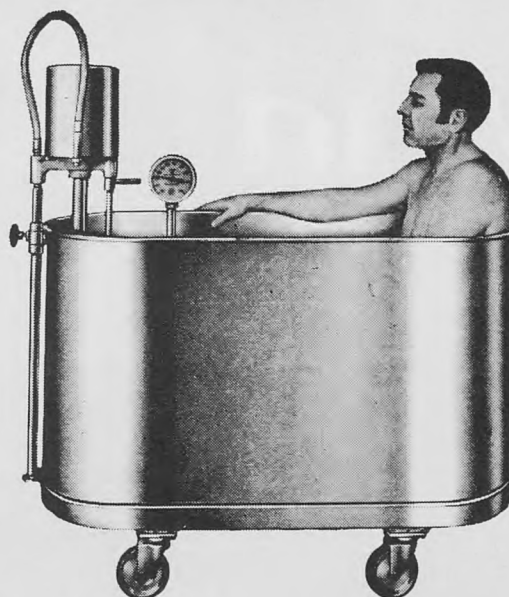
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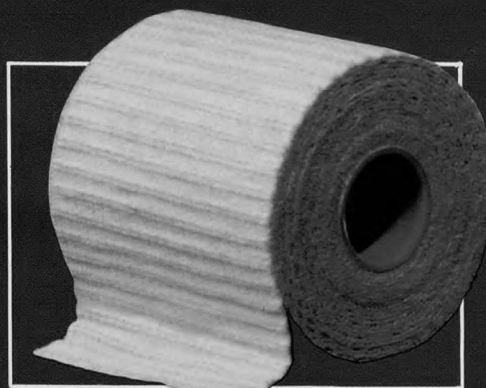


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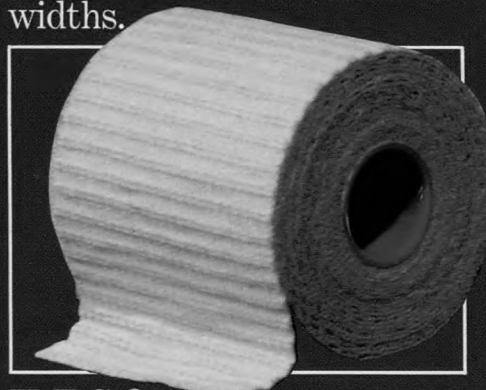
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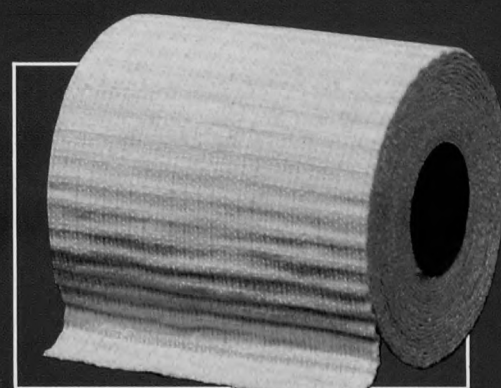
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Athletic Training will be happy to list events of interest to persons involved in sports medicine, providing we receive the information at least two months in advance of publication. Please include all pertinent information and the name and address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

MARCH, 1979

11 District 10 Meeting, Portland Motor Inn, Portland, Oregon. Contact Leo Marty, Head Trainer, Portland State University, P.O. Box 751, Portland, Oregon 97207.

16-17 District 4 Meeting, Perrysburg Holiday Inn, Perrysburg, Ohio. Contact Pat Troesch, Memorial Hall, Bowling Green State University, Bowling Green, Ohio 43403.

16-20 American Association of Health, Physical Education and Recreation National Convention, New Orleans, Louisiana. Contact AAHPER, 1201 16th Street N.W., Washington, D.C. 20036.

23-25 Fourth Annual Dogwood Conference on Sports Medicine, Exercise Physiology, and Orthopaedics. Atlanta Hilton Hotel, Atlanta, Georgia. Contact Dogwood Conference, Suite 400-A, Atlanta, Georgia 30308.

24 Florida Technological University 3rd Annual Sports Medicine Clinic, Contact Ron Ribaric, ATC, Head Athletic Trainer, Florida Technological University, Box 25000, Orlando, Florida 32816.

26-28 Fourth Annual Sports Medicine Symposium, Cincinnati, Ohio, Contact Ken Rusche, Sports Medicine Institute, Old Administration Building, Cincinnati General Hospital, 234 Goodman Avenue, Cincinnati, Ohio 45267.

APRIL, 1979

5-6 Annual Cleveland Clinic Sports Medicine Symposium, Cleveland Clinic, Cleveland, Ohio. Contact Rick Hall, Section of Sports Medicine, 9500 Euclid Avenue, Cleveland, Ohio 44106.

7 Annual Bauman Symposium on Sports Medicine, St. Louis University Medical Center, St. Louis, Missouri. Contact Mr. Robert Swanson, St. Louis University Hospitals, 1325 South Grand Boulevard, St. Louis, Missouri 63104.

20-22 Penn Relays Symposium on the Medical Aspects of Jogging, Running and Marathoning, Philadelphia. Contact Nancy Wink, University of Pennsylvania Medical School, Philadelphia, Pennsylvania 19104.

20-21 East Carolina University's Ninth Annual Sports Medicine Conference. Contact Rod Compton, ATC, Sports Medicine Division, East Carolina University, Greenville, N.C. 27834.

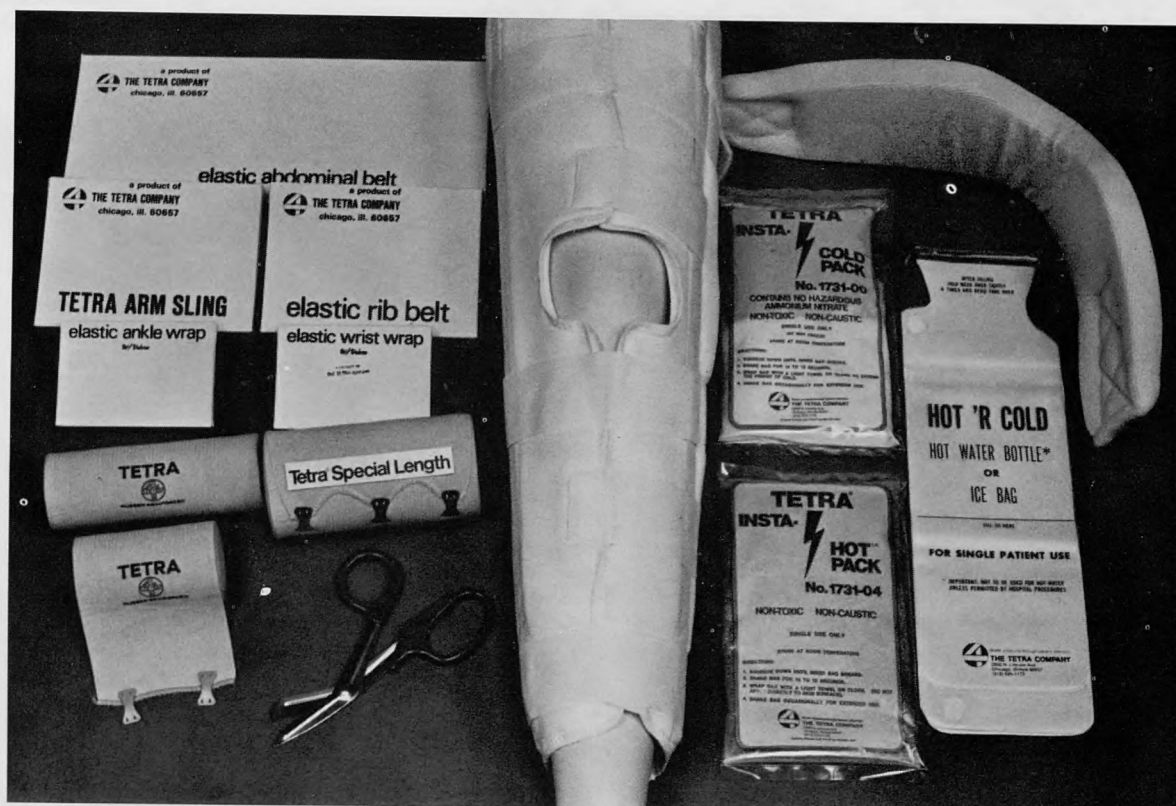
MAY, 1979

12 4th Annual Sports Medicine Seminar, Salisbury State College, Salisbury, Maryland. Contact Hunter Smith, Physical Education Department, Salisbury College, Salisbury, Maryland 21801.

17 Prevention of Summer Sports Injuries, Children's Hospital, Boston, Massachusetts. Contact Lyle Micheli, M.C., Sports Medicine Division, Children's Hospital Medical Center, 300 Longwood Ave., Boston, MA 02115.

23-26 American College of Sports Medicine Annual Meeting and Pan Pacific Conference, Honolulu. Contact ACSM, 1440 Monroe Street, Madison, Wisconsin 53706.

Continued on page 47



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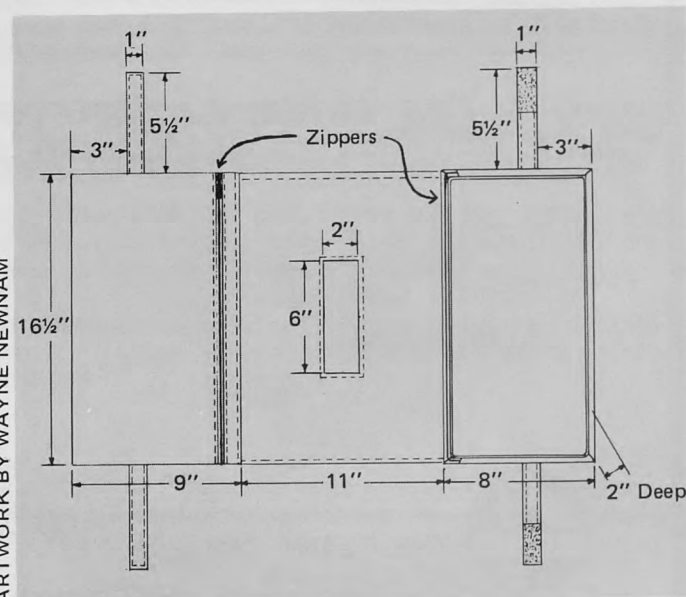
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Rod Compton M.Ed., A.T., C.
East Carolina University

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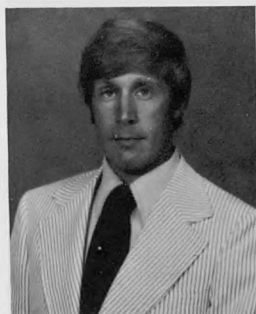
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ARTWORK BY WAYNE NEWNAM

Editor's Note: Anyone wishing to have an idea, technique, etc., considered for this section should send it to Rod Compton, Sports Medicine Division, East Carolina University, Greenville, N.C. 27834. Copy should be typewritten, brief and concise, using high quality photos and/or illustrations.

CURRENT LITERATURE



by Ed Christman, A.T., C.
THE COLLEGE OF WILLIAM & MARY

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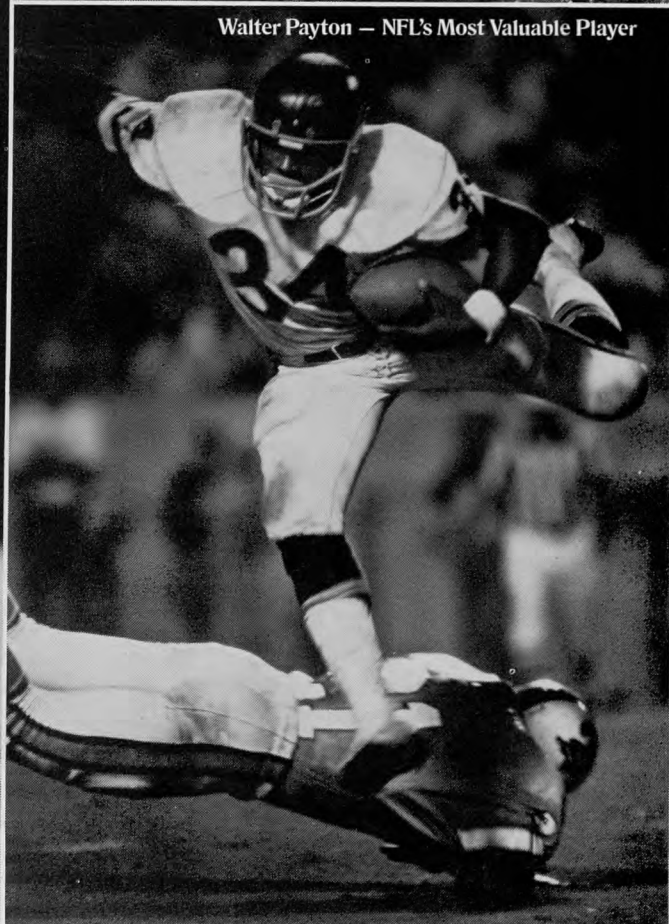
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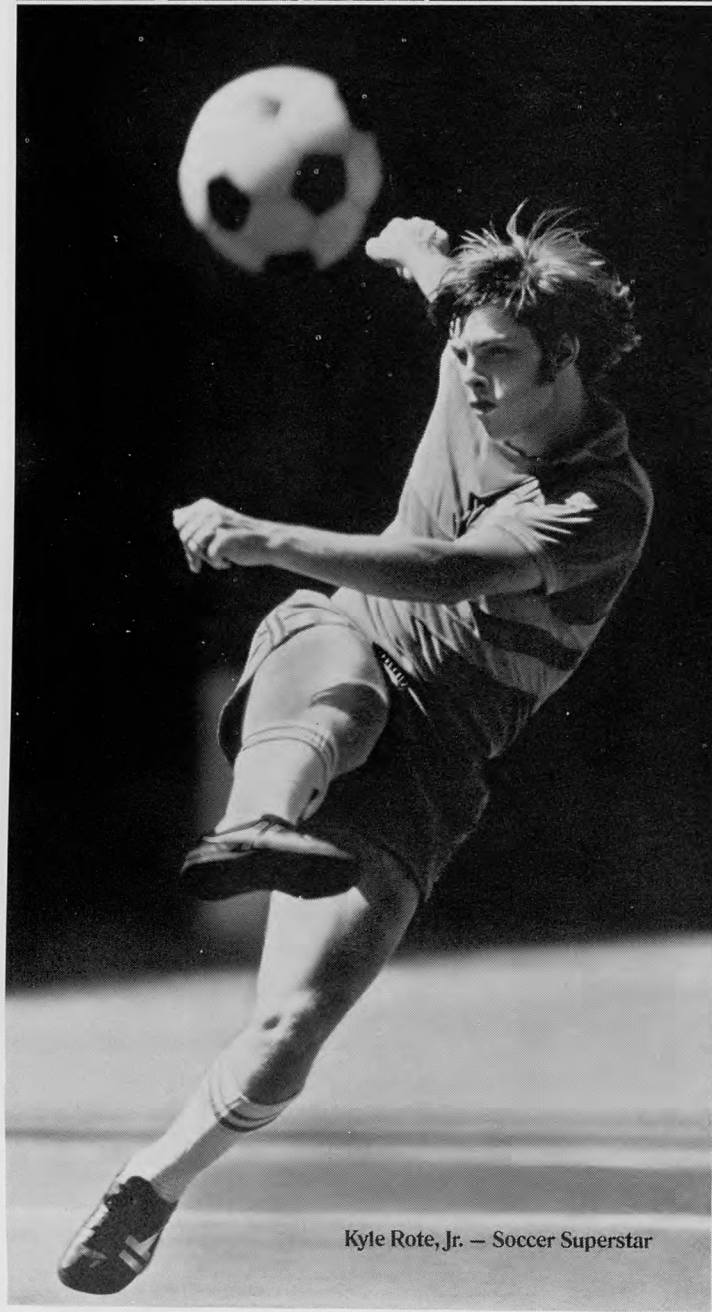
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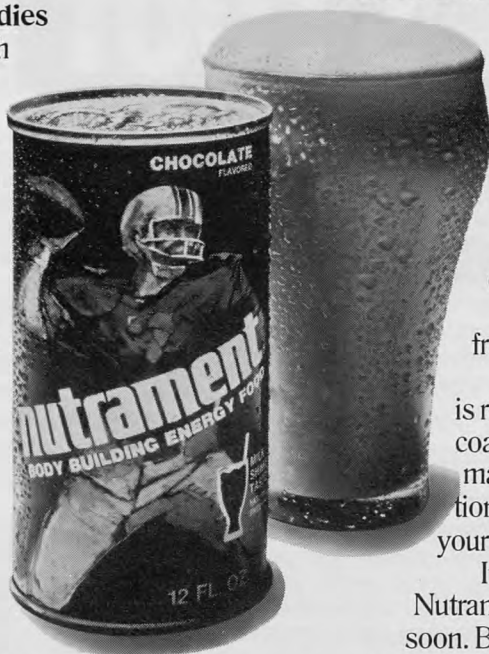
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Internal Derangement of the Knee

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Internal derangement of the knee refers to a convenient grouping of clinical lesions (Table 1) that tend to produce similar signs and symptoms of mechanical disfunction of the knee. Meniscus lesions are most frequently encountered, but chondromalacia of the patella, anterior cruciate ligament tears, osteochondritis dissecans, loose bodies, osteochondral fractures, and pathologic synovial plicae are also causes of internal derangement.

The precise diagnosis may be difficult to determine, since these lesions can be associated with similar

mechanisms of injury, cause similar symptoms, have similar findings on physical examination, and standard x-rays are frequently non-diagnostic. Nonetheless, the cornerstone of the evaluation is a careful history and thorough physical examination. The additional diagnostic procedures of arthrography and arthroscopy of the knee are proven adjuncts of great value, but can never replace the need for thoughtful clinical evaluation, nor substitute for sound clinical judgement.

HISTORY

Mechanism of Injury

It is important to detail the mechanism of injury, as this can help direct attention to the anatomic structures that may have been injured, and how badly. Direct blow mechanisms can cause chondromalacia of the patella or chondral fracture, and if applied slightly from the medial side it can cause patellar subluxation or dislocation. Probably the most common mechanism of injury leading to internal derangement is the non-contact cutting maneuver with sudden change in direction or speed applying deceleration and then torque and acceleration stresses to the weight bearing lower extremity. This mechanism commonly causes meniscus tears, but can cause any of these lesions except osteochondritis dissecans, and it might even be the precipitating cause of an osteochondritis dissecans lesion to separate and become a loose body. The other common mechanism of in-

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jury is from external contact forces being applied to the knee in various degrees of flexion and rotation, such as being blocked or tackled from the lateral or medial aspect of the knee.

Importantly, there maybe no history of specific antecedent injury, with knee symptoms arising spontaneously during or following athletic activities, which would be a clue that the problem might be chondromalacia of the patella or osteochondritis dissecans.

Symptoms

The most common symptoms associated with internal derangement of the knee are pain, swelling, giving way, and locking. Each of these symptoms should be developed in some detail, as that may be of some help in attempting to differentiate between the various lesions. In regard to pain, localization may help indicate the type of injury, (i.e. medial pain from a torn medial meniscus) although pain is often poorly localized, and at times can localize to the opposite side of the knee from the actual problem. It should also be ascertained whether the pain is intermittent or constant, and if intermittent, what types of activities produce the pain.

The presence or absence of swelling within the knee is a very significant aspect of the history. When swelling occurs following an injury, it is of utmost importance to determine how soon the swelling occurred after the injury. The early onset, within two or three hours, is due to bleeding within the knee (hemarthrosis) and it tends to indicate different categories of problems (torn anterior cruciate ligament, osteochondral fracture, major displaced meniscus tear) than when the swelling gradually accumulates over the subsequent two or three day period (meniscus tear, chondromalacia patella, loose body). Intermittent effusion associated with strenuous activities is a significant symptom, even when there is no significant functional disability at the time of the activities. It may well indicate that a significant internal derangement is present, and may indicate that articular surface damage exists and is possibly being increased.

Giving way is another important symptom frequently associated with internal derangement. This may be traumatic giving way to the point where the knee totally collapses and the athlete falls to the ground, either with one initial injury or repeatedly with rotational and deceleration forces. More often, however, this is a subjective feeling that the knee is going to give way if certain maneuvers are carried out, and frequently there will be no history of actual giving way because the athlete is sufficiently well coordinated to be able to avoid the stressful situations that would be associated with giving way. However, additional questioning will usually indicate that while they are able to play, they are unable to really make hard cuts or starts and stops with that leg because if they did it would give way. So it is important to pursue the history when there is a negative reply regarding giving way, to be certain that the athlete is able to stop and cut normally off of the involved lower extremity.

Locking is the other important symptom associated with internal derangement. There often is confusion about just what is meant by the term locking, and it usually means different things to different people. The medical definition is that it indicates a consistent block to full extension of the knee. However, from this position of lack of full extension, the knee can usually freely flex well beyond 90 degrees. Few patients would recognize this as a locked knee, because the natural tendency is to assume that "locked" means that the knee is stuck in one position and will not extend or flex. Sometimes, the athlete will have some other type of symptom which is considered by him or her to be locking. So when obtaining the history of locking, if the athlete states that locking is occurring, it is imperative that they be asked to define what they mean

by locking. If that symptom is not mentioned by the athlete, when you ask if there is any locking, it is important that you explain what you mean by locking. It is also useful to know whether the locking is intermittent with intervening symptom-free intervals (suggesting the possibility of loose body, or displacement and reduction of a torn meniscus fragment) or did the locking occur at the time of an acute injury and that the knee has not been able to fully extend since that time (usually due to a large displaced bucket-handle tear of the meniscus), or whether it was possible to fully extend the knee immediately following the injury, but by the following day there was lack of full extension (usually due to the combination of intra-articular swelling and reactive hamstring spasm).

History of Previous Injury

Another important aspect of the history is to determine whether there has been previous difficulty with the knee, and if so, to make an attempt to determine its nature, extent, type and seriousness of symptoms and whether they were similar to the current difficulties, and whether they had completely subsided prior to the onset of the present difficulties. If there has been previous injury to the same knee, as much information as possible should be obtained, including the extent of evaluation, the diagnosis, the initial treatment, the nature and extent of rehabilitation, and whether full functional capabilities had been regained. If there has been previous surgery performed upon that knee, it is essential to have accurate and detailed information as to the pathology, procedure performed, and whether there was any evidence of injury to other structures at that time. Finally, it is important to ask whether there has been any significant injury to the opposite knee, since it will be utilized as a baseline for comparison during the physical examination.

PHYSICAL EXAMINATION

A careful, comprehensive, and systematic examination should be carried out in every instance, taking care not to focus only on an obvious abnormality and in the process overlook significant associated pathology. However, the information gained from the history should raise the index of suspicion for certain types of lesions, and the physical examination should be particularly focused to help delineate those areas.

The aspects of the physical examination which are likely to be abnormal with internal derangement of the knee will be discussed, but again it must be emphasized that a complete, thorough knee examination should be carried out in every instance. Atrophy of the thigh musculature will usually be present if it is a chronic or subacute problem. Measurement of thigh circumference at the same level in the two legs is a convenient way to document atrophy. Also, the character of the muscle tone with maximal contraction is also usually revealing, as the involved leg will have discernably decreased muscle tone. The vastus medialis obliquus is often atrophied or dysplastic with patellofemoral abnormalities.

The presence of intra-articular swelling is a very significant physical finding. If the amount of swelling is large, there is no difficulty in recognition. If there is only a small amount of effusion, it is best demonstrated by milking down the suprapatellar pouch with one hand and holding it in that position while palpating for a fluid wave from medial to lateral beneath the patella with the other hand, as well as checking for ballottement of the patella.

There is a grouping of patellofemoral signs which can call attention to difficulties with the extensor mechanism and patellofemoral joint, and possibly indicate the presence of chondromalacia of the patella. These signs consist of an increased quadriceps angle, pain and/or apprehension with lateral displacement of the patella, tenderness to palpation of the medial or lateral facet of the patella, and

pain with dynamic patellofemoral compression. One should also look for patella alta.

When assessing the range of motion, the presence or absence of full extension of the knee is critical, as the lack of full extension is virtually always a significant finding. A lack of full flexion is also important to document, but in the acute situation, almost any injury including trivial injuries will be associated with a temporary lack of flexion. It is best to measure range of motion with a goniometer so that when following the progress one can be certain whether the range of motion is improving or not.

Meniscus signs can be elicited by palpating for tenderness along the joint lines from anterior medial to posterior medial and from anterolateral to posterolateral. The circumduction maneuvers of the McMurry type are also very helpful in bringing out posterior horn pathology in the menisci. The classic description of a positive McMurry sign requires a click or snap as well as pain with the circumduction maneuver and when present is usually significant. Often, however, there will be only pain with no click associated with a posterior horn tear. Also, it is important to check the opposite knee because in some individuals there will be a strong snap or click with circumduction maneuvers in both knees, with no history of trauma or disability, and it probably represents a normal finding for that individual.

Finally, one should carefully assess the knee for ligament stability, looking for straight medial or straight lateral laxity, straight anterior and straight posterior laxity, and the various tests for anteromedial and anterolateral rotatory instability.

One should also palpate along the medial border of the patella with flexion and extension in an effort to appreciate a thickened synovial plica as it snaps back and forth across the medial femoral condyle. Also, one should be alert for palpation of a loose body moving about in the suprapatellar pouch or along the medial or lateral joint lines.

DIAGNOSTIC STUDIES

When evaluating a knee with a possible internal derangement, standard x-rays should be obtained. Four standard views are recommended, anterior posterior, lateral, tunnel view (AP projection with the knee flexed to 90 degrees), and the Hughston type tangential view of the patellofemoral joint taken with the knee at approximately 45 degrees of flexion. Osteochondritis dissecans is readily apparent on these x-ray views, but occasionally the lesion will only be visualized on the tunnel view and is not appreciated on the anterior posterior view. Patellofemoral abnormalities such as patella alta, shallow patellar groove of the femur with deficient lateral buttress, and abnormal lateral tilting of the patella on the Hughston view are frequent findings with patellofemoral pain syndromes and chondromalacia of the patella. Loose bodies with a sufficiently large osseous or calcific component will also be readily visualized on standard x-rays.

The additional diagnostic adjuncts of arthrography and arthroscopy may also be indicated when a surgically significant lesion is suspected. Double contrast arthrography is of proven value in assessing the menisci, and is particularly accurate for the medial meniscus. The lateral meniscus is more difficult to evaluate arthrographically because of the additional shadows produced by the popliteus tendon sheath. The cruciate ligaments can also be evaluated arthrographically, but the accuracy is considerably less than that for meniscus lesions.

In recent years, arthroscopy of the knee has added another dimension to the diagnosis of internal derangement of the knee by providing direct visualization of these structures, and is not only highly accurate (90-95 percent), but is of very low morbidity, and where

available, has by and large obviated the need for exploratory arthrotomy.

THE LESIONS OF INTERNAL DERANGEMENT

The lesions of internal derangement will be reviewed, with emphasis on the typical history and physical findings, and will be illustrated by the arthroscopic appearance.

TABLE I

INTERNAL DERANGEMENTS OF THE KNEE

Meniscus Tears
Chondromalacia of the Patella
Anterior Cruciate Ligament Tears
Osteochondritis Dissecans
Loose Bodies
Osteochondral Fractures
Pathologic Synovial Plicas

Meniscus Tears

The characteristic history is that of a twisting injury to the knee followed by joint line pain, effusion, giving way, and locking. The associated physical findings are effusion, lack of full extension (if locking is present), joint line tenderness, and pain or trapping with circumduction maneuvers. It has been stated in the past that the medial meniscus is torn much more frequently than the lateral, with the ratio being four or five to one. With increasingly accurate means of diagnosis using arthrography and arthroscopy, more and more lateral meniscus tears are being recognized, and while the medial meniscus is torn more often than the lateral, the ratio is more in the range of two to one or less. The displaced bucket-handle tear of the medial meniscus (Figure 1) is a very common injury in the young athletic age group, and the posterior horn is another common area for medial meniscus pathology (Figure 2) in a young athlete. The most frequent types of tears in the lateral meniscus are posterior horn tears (Figure 3) and parrot-beak tears of the free margin (Figure 4), but bucket-handle tears can also occur on the lateral side. The very posterior lesions of both menisci in a knee with tight ligaments are very difficult to visualize convincingly at surgery, but can be more readily visualized arthroscopically.

Chondromalacia of the Patella

Typically, the history is that of peripatellar or retropatellar aching pain coming on during or following vigorous activities, frequently with no convincing history of injury, and often bilateral in nature. If there has been trauma, the mechanism is that of having sustained a direct blow to the patella by falling on the flexed knee. The symptoms are also typically aggravated by negotiating stairs or hills, and after prolonged sitting with the knees flexed. Swelling, grating of the patella, and giving way are also common. On physical examination, one or more of the patellofemoral signs will be abnormal: increased quadriceps angle, atrophy or dysplasia of the vastus medialis obliquus, patella alta, pain or apprehension with lateral displacement of the patella, tenderness of the medial and/or lateral facets, and pain with dynamic patellofemoral compression. The possibility of associated meniscus tear must always be considered, and certainly does occur. However, there frequently is tenderness along one or both joint lines with active chondromalacia of the patella even when there is no associated meniscus lesion, and in those situations the circumduction tests are usually negative. The arthroscopic appearance of chon-

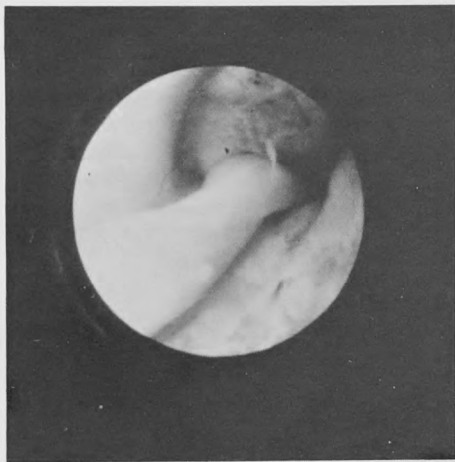


Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6A



Figure 6B

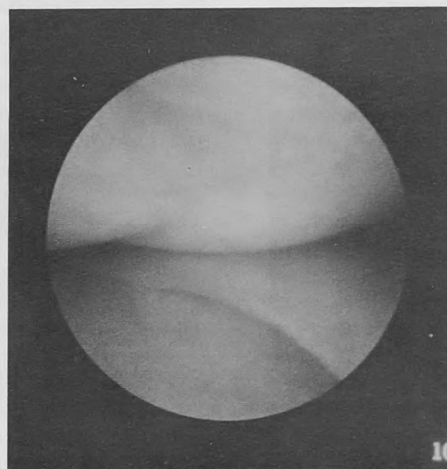


Figure 7A

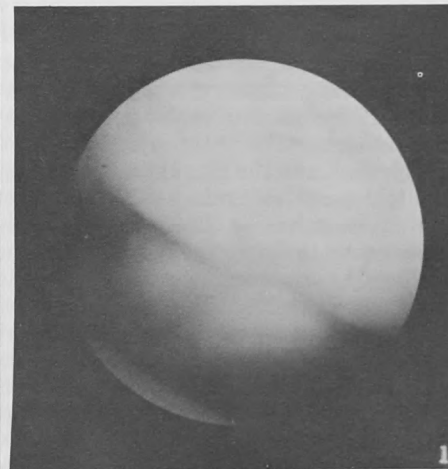


Figure 7B

dromalacia of the patella is illustrated in Figure 5.

Anterior Cruciate Ligament Tear

The typical history is that of a significant acute injury (either from a cutting type injury without contact, or a contact injury with valgus stress applied to the knee in varying degrees of flexion and rotation) usually with immediate disability, and often with an associated "pop" or "snap" at the time of injury, followed by the early onset of hemarthrosis within four hours following the injury in spite of the early application of ice and compression. Once the hemarthrosis is present, there will be a lack of full extension, but the athlete will usually state that immediately following the injury the knee was capable of

reaching full extension. There frequently is also localized tenderness over a portion of the medial collateral ligament and along the medial joint line. Tests for medial and lateral stability will be normal, and the usual test for the anterior cruciate ligament, the anterior drawer sign at 90 degrees of flexion, is usually negative unless tested under anesthesia. The other tests for anterior cruciate ligament incompetency, such as the lateral pivot-shift sign of MacIntosh, the jerk sign of Hughston, or the flexion rotation drawer sign of Noyes, can be elicited immediately following the injury, but once the hemarthrosis has developed, these tests cannot be adequately performed because of the lack of full extension, pain, and protective muscular splinting and guarding. Because of this, the an-

ILLUSTRATIONS ON OPPOSITE PAGE

Figure 1

A displaced bucket-handle tear of the medial meniscus as visualized through the arthroscope from the lateral side of the joint. The femur is visualized above, and the tibia below, with the displaced meniscus fragment running horizontally across the central portion of the field blocking visualization of the medial joint space.

Figure 2

A posterior peripheral tear of the medial meniscus. The arthroscope has been passed far posterior in the joint, and the medial femoral condyle is visualized above, and the lower structure is the upper surface of the posterior horn of the medial meniscus. A large crevice is visualized at the periphery of the medial meniscus.

Figure 3

The arthroscopic appearance of a tear through the posterior horn of the lateral meniscus.

Figure 4

A typical example of the parrot-beak or radial tear through the middle third of the lateral meniscus as visualized through the arthroscope. The femoral condyle is seen above, and the tibial plateau below, with the lateral meniscus lying in between with the tear visualized running from the free margin out towards the periphery.

terior cruciate ligament laxity cannot be demonstrated, and in the absence of any laxity and in the absence of any abnormal x-ray findings, injuries of this type may not be considered to be serious and a "wait and see" approach maybe taken. However, with the presenting history as described above, even when there is no demonstrable laxity, the index of suspicion should be very high that a significant injury has occurred, and examination under anesthesia and arthroscopic examination has documented tears of the anterior cruciate ligament in over 70 percent of these cases at our institution. The arthroscopic appearance of acute tears of the anterior cruciate ligament is

Figure 5

The articular surface of the patella in an athlete who has sustained recurrent patellar dislocation with chondromalacia of the patella as visualized through the arthroscope.

Figure 6A

The arthroscopic appearance of an acute tear of the anterior cruciate ligament which is lying horizontally in the intracondylar notch with an edematous and hemorrhagic appearance.

Figure 6B

Another example of an acute tear of the anterior cruciate ligament as visualized arthroscopically, with the torn fibers of the anterior cruciate ligament clearly visualized within the intercondylar notch.

Figure 7A

The arthroscopic appearance of an osteochondritis dissecans lesion of the medial femoral condyle. The normal articular surface seen on the right, with the bulging articular cartilage overlying the osteochondritis dissecans lesion to the left.

Figure 7B

Another osteochondritis dissecans lesion which has separated and become an osteochondral loose body within the joint.

illustrated in Figure 6.

Osteochondritis Dissecans

The usual clinical presentation is not dissimilar to chondromalacia of the patella with the gradual onset of aching pain within the knee associated with vigorous activities, and frequently with effusion, but with no convincing history of injury. It may also be bilateral.

The physical examination may be within normal limits or minimally abnormal, with a mild effusion and localized tenderness along the medial or lateral femoral condyle being the only abnormalities. The patellofemoral signs

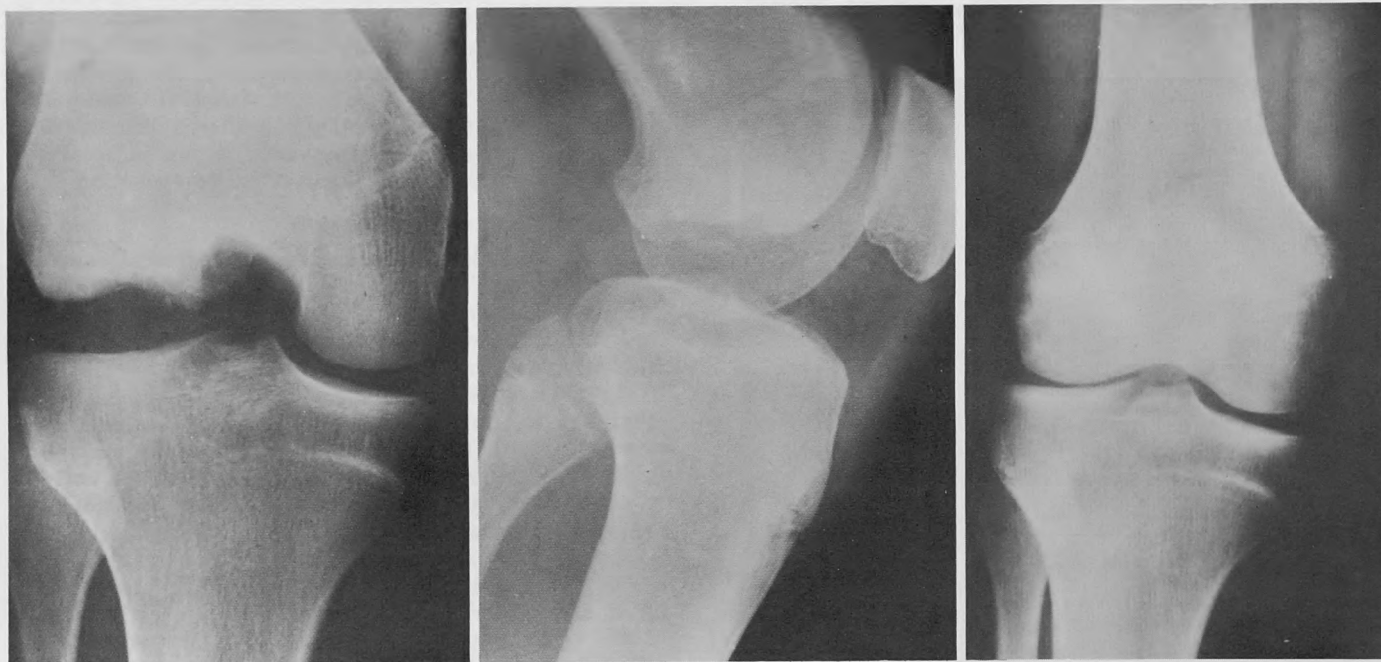


Figure 8

Standard x-rays in patient with osteochondritis dissecans. The tunnel view (A.) demonstrates a large lesion of the lateral femoral condyle, which is also visible on the lateral view (B.), but which is totally obscured on the standard AP view (C.).

should not be positive unless there is associated chondromalacia of the patella. However, if the osteochondritis dissecans lesion has acutely separated and becomes a loose body (Figure 7), there will be a more dramatic presentation with severe pain, locking, and hemarthrosis. The diagnosis is made by x-ray, and the lesion typically involves the medial femoral condyle, but can also involve the lateral femoral condyle. The lesion is usually best shown on the tunnel view, but is also visible on the lateral view. It is surprising how even large lesions may not be demonstrated on the standard AP view (Figure 8).

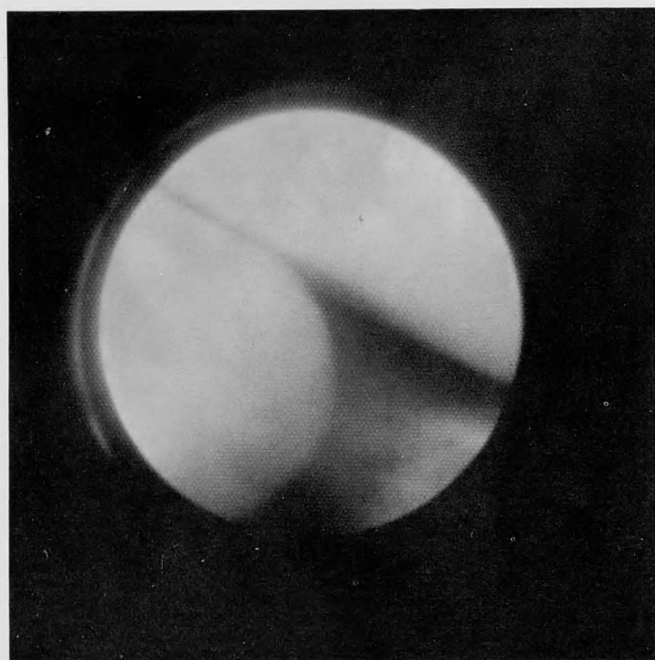


Figure 9

An intra-articular cartilaginous loose body found within the intercondylar notch is visualized through the arthroscope, with the rounded border of the loose body filling the left hand side of the field. This patient had all of the classical history and physical findings usually associated with a torn medial meniscus, which was proven to be normal.



Figure 10

A thickened, scarred, and hypertrophic medial parapatellar synovial plica as visualized arthroscopically.

Loose Bodies

The characteristic presentation of intra-articular loose body is that of intermittent locking which is usually brief or fleeting, and some maneuver combining flexion and rotation will release the loose body from its impinging location and allow free range of motion once again. There is usually some pain associated with these episodes, although occasionally there is no significant pain. The athlete is usually aware of "something moving around" within the knee, and they can usually describe its approximate size. If the loose body is accessible to palpation, it usually will be in the suprapatellar pouch or in the medial and/or lateral sulcus just above the joint line. If the knee is not locked and if the loose body is not palpable, the knee examination may be entirely normal and the diagnosis must rest with the history. X-rays will also be normal unless there is sufficient bone or calcium in the loose body to make it visible on x-rays. At arthroscopy, loose bodies can be encountered anywhere within the joint (Figure 9).

Chondral Fracture

Acute chondral or osteochondral fracture is another lesion that presents as the acute anterior cruciate ligament tear with an acute injury, immediate disability, the early onset of hemarthrosis, no demonstrable instability and negative x-rays. Even when there is an osseous component to the lesion, it usually is so small that it won't be visible on x-ray. In our experience, the diagnosis has been made arthroscopically, and if the osteochondral fracture is the only significant lesion, the fragments can usually be extracted under arthroscopic control without requiring formal arthrotomy.

Pathological Synovial Plica

The suprapatellar and medial parapatellar plicas are normal synovial folds within the joint which can become thickened and scarred following direct trauma, and which can hang up and snap back and forth over the femoral condyle (usually medial), and give the same type of internal derangement symptoms which have been discussed. Sometimes the thickened plica can be palpated snapping back and forth over the femoral condyle with flexion and extension, but often the clinical picture is indistinguishable from chondromalacia of the patella or meniscus injury. The diagnosis is best made arthroscopically, and the typical appearance is illustrated in Figure 10. These lesions can usually be successfully treated with arthroscopic release or partial resection.

Beware

Beware the collateral ligament sprain, especially second degree sprains. These injuries frequently have a mild effusion and they are often tender along the joint line in the area of the ligament that has been sprained, and they usually have slight limitation of extension and flexion. All of these features can be associated with the ligament sprain alone, but of course, all of them can also be associated with meniscus tears and initially it is not possible to differentiate clinically between a Grade II collateral ligament sprain and a Grade II collateral ligament sprain with associated tear of the meniscus. The recommendation is to treat this injury as a sprain, but to advise the athlete that the meniscus may have been injured, and if the response is not appropriate for treatment of the sprain, it will be necessary to investigate additionally for a possible torn meniscus.

It is also extremely important to remember that knee pain does not always originate in the knee. It is possible to have pain referred to the knee from other areas, and sometimes this is even associated with a "sympathetic" effusion of the knee with no actual knee pathology existing.

Remember that such conditions as slipped capital femoral epiphysis of the hip (in the adolescent athlete), myositis ossificans, and bone tumors may initially present with the complaint of knee pain.

RECOMMENDED APPROACH TO INTERNAL DERANGEMENTS OF THE KNEE

As stated previously, a careful history and complete physical examination are the most essential factors in reaching the clinical impression that an internal derangement may be present, and which lesion is most likely. Standard x-rays should be obtained to exclude any bony pathology.

The athletes who present with the early onset of hemarthrosis (as discussed under anterior cruciate ligament tears) or with an acutely locked knee that has remained locked since the injury even without hemarthrosis are selected for examination under anesthesia and arthroscopic examination promptly (within two weeks of the injury if at all possible) as the probability is extremely high that a lesion of surgical significance exists and that early definitive surgical intervention may provide the best chance for an optimal result. If no lesion of surgical significance is found then no surgery is performed and appropriate conservative treatment of protection and rehabilitation is instituted, and the arthroscopic examination has added no morbidity to that of the injury itself.

The athletes who do not present with an acute hemarthrosis or locked knee are divided into two groups. (1) If the clinical evaluation *strongly* suggests the possibility of significant internal derangement, then double contrast arthrography is performed, and if positive, we proceed directly to arthroscopy and appropriate surgical treatment if the diagnosis is confirmed. If the arthrogram is negative or equivocal, then conservative treatment and rehabilitation is instituted and arthroscopic examination

considered only if there is not an adequate response. (2) If the initial clinical impression is that an internal derangement of surgical significance *may* be present, and the knee is not locked, conservative treatment and rehabilitation are begun initially, and not even arthrography is considered unless the response is not adequate. Many knees in this category will recover completely and never need to undergo diagnostic studies such as arthrography and arthroscopy. However, if signs and symptoms persist inspite of adequate conservative treatment, then arthrography is performed and if positive, we would proceed with arthroscopic examination and surgical treatment if warranted. If the arthrogram is negative or equivocal, then non-operative management is continued, and any subsequent consideration of proceeding with arthroscopy and possible surgical treatment depends upon the overall clinical assessment of the athlete as he or she is being followed.

SUMMARY

Internal derangement of the knee is common in athletes, and the optimal results of treatment depend upon timely and accurate diagnosis and appropriate treatment. The first step to diagnosis is a careful history and thorough physical examination, but frequently the diagnostic adjuncts of arthrography and arthroscopy of the knee are needed to help arrive at the precise diagnosis. A recommended approach to these injuries has been presented that permits early definitive diagnosis for those cases most in need of prompt surgical care, and provides the definitive diagnosis in those cases that will ultimately come to surgical treatment but who don't necessarily require early definitive treatment, but which also avoids the diagnostic studies of arthrography and arthroscopy in those athletes who have less serious injuries and who recover satisfactorily with conservative treatment and rehabilitation.

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Injuries to the Acromioclavicular Joint — Mechanisms, Diagnosis, and Treatment

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Eighty-one cases of acromioclavicular injury associated with college football have been recorded at the University of Virginia over the past five years. (9) Due to this high incidence of acromioclavicular injury, it is important for the sports medicine practitioner to be knowledgeable in the anatomy of the joint, the mechanisms of injury, the diagnosis of the injury, the proper treatment, and the rehabilitation of the acromioclavicular injury.

A review of the literature of 1974, 1975, 1976, and 1977 was undertaken using the Index Medicus as a prime source. Literature from previous years was researched based upon references given in recent articles. In addition, a review of recent texts of sport medicine, orthopedic surgery, and general surgery was completed.

Anatomical Considerations

The diarthrodial acromioclavicular joint is one of the three joints of the shoulder girdle. (11, 12) The joint is unique to the human. (25) This articulation of the acromion and the clavicle often includes an articular disk, usually separating the anterior aspect of the joint. (11, 21; figure 1) Infrequently, this meniscus divides the entire joint, in which case two synovia are present, rather than the normal single synovium. (11)

The acromium is a process of the scapula. It is located laterally to the clavicle, which is the most prominent bone of the anterior aspect of the shoulder. (12) The clavicle protrudes slightly above the acromion and functions as a support, holding the scapula on the posterior aspect of the thorax, and preventing anterior rotation of the glenoid. (11, 12, 19) The inferior and posterior aspects of the clavicle serve as the areas of muscle attachment. The platysma is the only muscle that crosses the superior surface of the clavicle. (12) Both bones are subcutaneous. (11, 12, 19)

The acromioclavicular joint is held intact by the acromioclavicular ligament and the coracoclavicular ligament. (2, 11, 21, 23, 26; figure 2) The former lends lit-

tle stability to the joint. The two components of the latter, the trapezoid and conoid ligaments, are the significant stabilizers. (11, 23) These ligaments resist lateral, rather than medial deviation of the scapula. (21) They are reinforced by fibers of the deltoid and trapezius muscles. (21) The serratus anterior muscle also provides for joint integrity by preventing medial motion of the scapula. (26)

Movement between the lateral articulation surface of the clavicle and the articulating aspect of the acromion occurs in most motions of the shoulder. (21) There is gliding and hinging of the acromioclavicular joint as well as long axis rotation of the clavicle. (11, 21) Powers briefly discusses these motions and refers the reader to Bateman's book, *The Shoulder and Neck*. (5)

Mechanisms and Incidence of Injury

The mechanism of injury is either direct trauma to the shoulder or less often referred force, transmitted through the humerus. (6, 21, 23, 26) The direct force is described as downward, slightly anterior and perhaps medial, forcing the scapula medially and downward. (26; figure 3) Frequently, it is the result of a direct blow to the tip of the shoulder. (6, 21) The injury due to referred force occurs when the individual falls on his outstretched arm or elbow. (6, 21) In both cases, the clavicle is generally displaced superior and sometimes posterior. (7)

Tossy, et. al., outlined a definite sequence of pathology. (26) First, the acromioclavicular ligament is torn, including the joint capsule and possibly the articular disk. Depending on the force, the coracoclavicular ligaments are torn next, in varying degrees. Tearing of the attachments of the deltoid fibers to the clavicle follows, then rupture of the trapezius fibers that attach to the clavicle. Fracture of the clavicle may occur previous to tearing of the acromioclavicular ligaments. In the elderly, fracture of the distal third of the clavicle is more common than rupture of the coracoclavicular ligaments. (23) Likewise, the coracoid may fracture before the coracoclavicular liga-

ments tear. Smith delineated the mechanism of coracoid fracture in more detail. It is a sudden, violent contraction or resisted tension of the short head of the biceps, the coracobrachialis and the pectoralis minor as they insert on the coracoid as a conjoint tendon. (25)

The coracoclavicular ligaments are rarely totally involved when the force is directed through the arm, as the force is dissipated and some other structure between the hand and elbow is likely to be compromised before the strong coracoclavicular ligaments tear. (21)

Contusion of the acromioclavicular joint area may occur without embarrassment of the acromioclavicular joint if the force is insufficient to disrupt either the acromioclavicular or coracoclavicular ligament. The subcutaneous nature of the clavicle and acromion predisposes them to contusion, and subperiosteal hematoma. (19)

Horn noted that the deltoid and trapezius muscles are

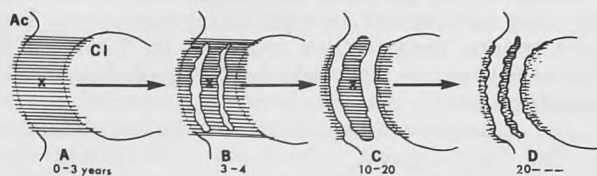


Figure 1

Evolution of the acromioclavicular disk (meniscus). A, From birth to age two a fibrocartilage bridge joins the acromion to the clavicle, Ac to Cl with no joint space. B, From age three to four, cavities form to either side of what will become the meniscus, x. C, In the first and second decades the meniscus is already beginning thinning and fibrillation, which increases rapidly from age twenty on, D, In the sixth decade the meniscus may be completely gone.

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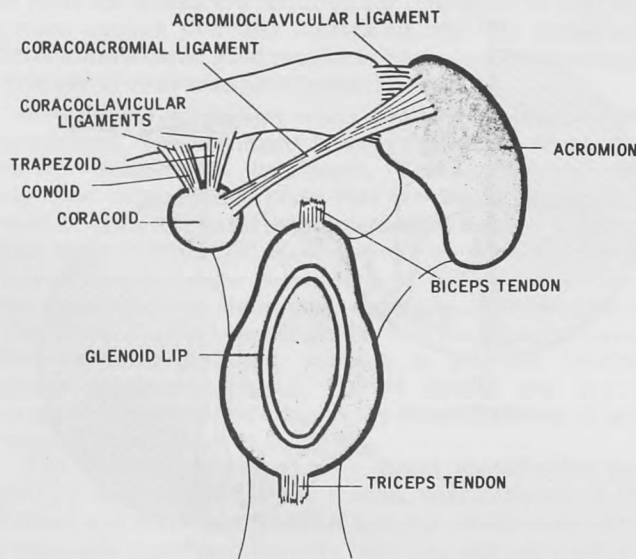


Figure 2

The acromioclavicular arch. The diagram depicts the shape of the glenoid fossa and its relationship to the acromial process, the coracoid process, and the coracoacromial ligament. In essence this diagram shows the socket of the glenohumeral joint and also portrays the relationship of the suprahumeral joint.

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frequently involved when the coracoclavicular ligaments are compromised. (13) One to two inches of the deltoid are often avulsed at the lateral end of the clavicle and the trapezius is often split parallel to its fibers at the acromioclavicular joint. (7)

In a four-year study at the Mofalcone Hospital the mechanism of injury in fifty percent of the acromioclavicular dislocations was related to sports. (17) In a more recent study, conducted in the United States, Prosser found that one-third of coracoid fracture cases related to acromioclavicular separation were a result of sports activities. Schwartz noted that acromioclavicular injuries occur in all sports. (23) Injuries to the acromioclavicular joint were noted in men's basketball, wrestling, and football in a five-year review of athletic injuries at the University of Virginia. (9) The incidence of injury is particularly high in football and rugby. There were eighty-one cases of acromioclavicular injury to football players recorded over a five-year period at the University of Virginia. (9) Behling notes that the incidence of injury is higher in rugby players because they are not afforded the shoulder-pad protection that football players have.

Diagnosis

The diagnosis of acromioclavicular injury includes a history, inspection, palpation, and roentgenographic examination. The mechanism of injury can often be determined from the history. If the history includes a blow to the shoulder, or a fall on an outstretched arm or elbow with resultant shoulder pain, one would certainly suspect acromioclavicular injury.

The patient frequently cocks his head toward the affected side and supports his arm with the opposite hand. (21) Visual inspection and comparison to the opposite shoulder will be diagnostic in cases of injury to the coracoclavicular ligaments, where the clavicle is noticeably displaced. (19, 21) However, elevation of the acromion with limitation of the shoulder in a child may suggest Sprengel's deformity, a congenital elevation of the scapula. (2)

Palpation of the joint is easiest if done from the medial direction. (12) Motion of the shoulder causes the joint to move, and may aid in palpation. (12) Pain, restriction of motion, crepitation, and edema may be noted. (19, 21, 26) Palpation should be bilateral. (12) Free anterior and posterior manipulation of the elevated clavicle usually in-

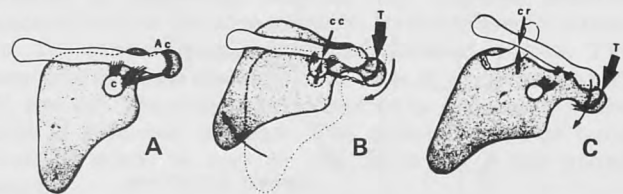


Figure 3

Mechanism of acromioclavicular separation. A, The normal relationship of the clavicle to the scapula with intact coracoclavicular and coracoacromial ligaments. B, The rotation of the scapula with the coracoid, Cc, acting as a fulcrum under the clavicle. Trauma, T, is from above. Contact of coracoid to clavicle is at arrows cc. C, Further force from T causes the clavicle to descend further and impinge upon the first rib at point cr, causing the ligaments to tear and complete separation of the acromioclavicular joint, Ac.

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dicates rupture of the joint capsule with rupture of the accessory coracoclavicular ligament. (2) Rarely, abnormal ligamentous laxity without a history of traumatic injury may permit a false positive manipulation. Janecki first reported this condition in a nineteen year old female with bilateral voluntary subluxation of the acromioclavicular joint. (16)

Roentgenography is a useful adjunct of physical examination. Roentgenographic view should be taken with the patient standing. (23) Tossy calls for anteroposterior views of both acromioclavicular joints with and without twenty pound weights in the hands. A marked separation between the coracoid and the inferior aspect of the clavicle may be noted in cases of acromioclavicular separation. (26) The distal end of the clavicle will ride well above the superior surface of the acromion. (21) Although fracture of the coracoid with acromioclavicular separation is rare (25), the coracoid should be inspected. The coracoid process may be avulsed if the coracoclavicular ligaments did not tear. Care must be taken to differentiate this avulsion from the normal unfused epiphysis. (22)

Tossy, Mead, and Sigmond were the first to classify

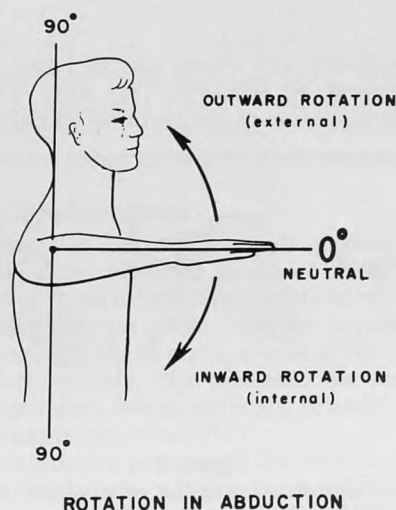
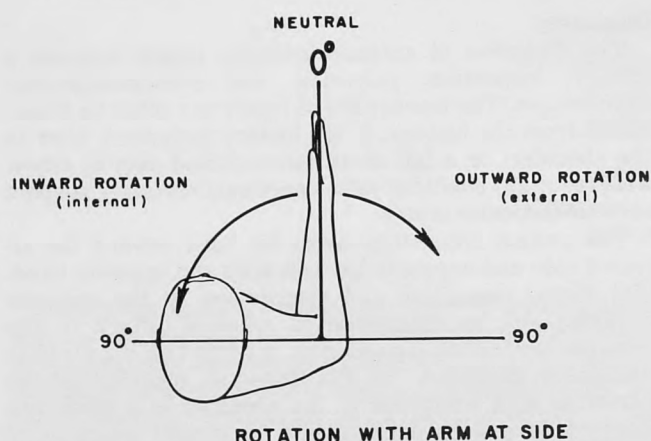
acromioclavicular separations. (21, 26) Their categories facilitate diagnosis with the goal of separating the cases into surgical and nonsurgical. (26) Their categories have been described by and used by many authors. (6, 19, 21) The categories are denoted Grade 1, Grade 2, and Grade 3. (6, 26; table 1)

Treatment: Surgical and Nonsurgical

The debate among orthopedic surgeons treating acromioclavicular separations concerns the treatment procedure.

Most surgeons would agree that the goals of treatment are restoration of anatomy, including establishment of normal appearance, and full return of function and strength. (3, 21)

There is general consensus that Grade 1 separations should be treated in the acute stage with ice and supported by a sling. (23, 26) Some physicians urge early active motion of the shoulder. (26) Even with Grade 1 injuries, some contusion of the articulating surface may lead to post trauma degenerative changes. (6) There is no definitive preventive treatment for this pathology in the recent literature.



Rotary shoulder motion

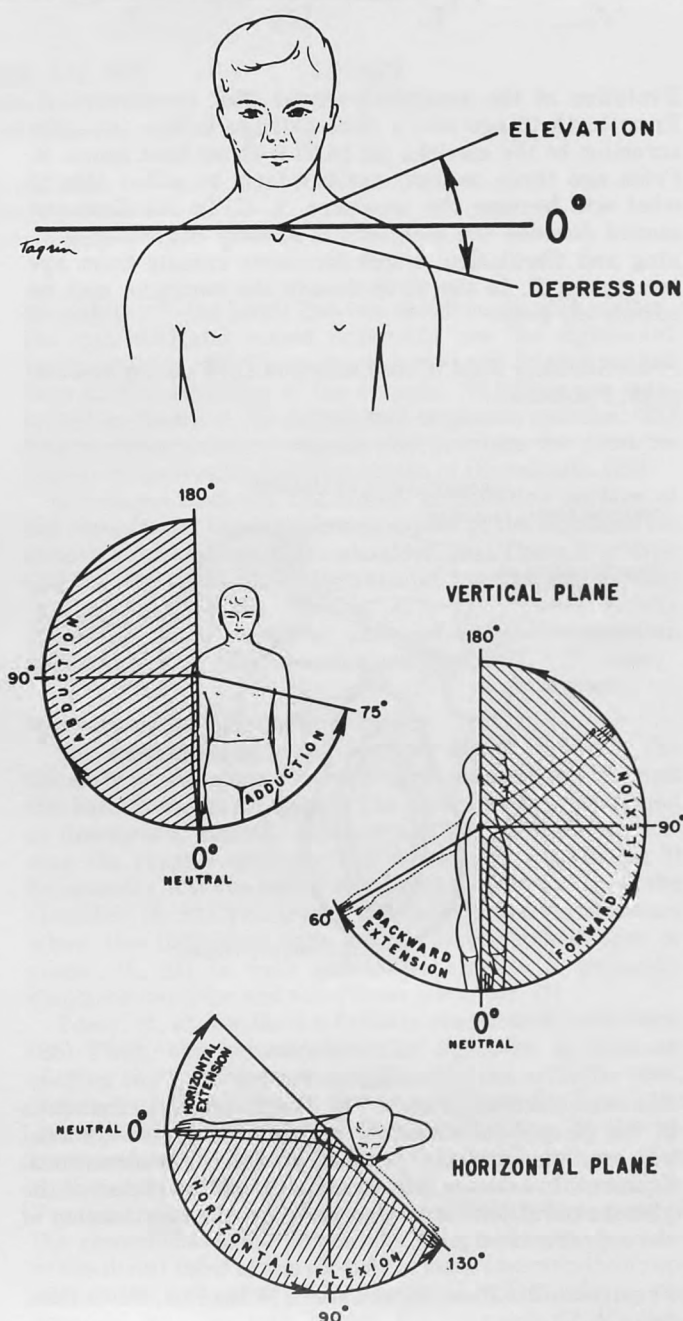


Figure 4

Shoulder motions observed during Acromioclavicular Injury Rehabilitation, from the Manual of Orthopaedic Surgery, American Orthopaedic Association

TABLE 1

GRADE 1

Pain, tenderness, swelling localized to joint itself
No gross deformity
Negative roentgenogram

GRADE 2

Localized pain, swelling, tenderness
Reluctance or inability to lift arm
Lateral end of clavicle may be quite prominent
Positive roentgenograms: Clavicle displaced cephalad about one-half the normal superior-inferior depth of the joint as compared with the normal side; also, the distance between the inferior cortex of the clavicle and the superior tip of the coracoid process is increased
The more significant relationship is the coracoclavicular one

GRADE 3

Usually severe disability and pain
Marked deformity of lateral aspect of clavicle, presenting posteriorly and upward, with no joint continuity
Roentgenogram positive: Separation of the acromioclavicular joint greater than one-half its normal depth, and more significant, wide separation of the coracoclavicular relationship, indicating complete rupture of the conoid and trapezoid ligaments

There is also general agreement concerning treatment of Grade 2 separations. One hundred fifty-five of the department heads of approved orthopedic training programs in the United States stated that Grade 2, as well as Grade 1, separations require only nonoperative treatment. (21) Methods of closed treatment vary, Urist listed fifty nonsurgical procedures in 1959. (28) Tossy suggest use of a shoulder spica with clavicle strap, applied with the shoulder abducted 60° and the elbow forward 45° for six weeks. (23, 26) This six-week immobilization is supported by O'Donohue's finding that pathophysiologically, at least six weeks are required for ligaments to heal and return enough to resist stretching. (20, 21) Anzel and Streitz have found good results in nonoperative treatment with use of dynamic splint immobilization. (3)

The debate intensifies when Grade 3 separations are considered. The argument focuses on the use of surgical versus nonsurgical treatment. Tossy, Newton, and Sigmond categorically state that treatment for Grade 3 must be open and external support must be provided from four to six weeks. (26) Neer and Welsh note that the involved ligaments are suspensory in nature and prevent the coracoid from descending upon the brachial plexus. Therefore, they advise surgical repair for all acute Grade 3 dislocations in young athletes to preclude brachial plexus impingement. (18) Others defend the use of surgical treatment, but not to the total exclusion of nonsurgical procedures. (4, 6, 19)

The benefits of surgery are: direct visualization permitting debridement of the wound, reattachment of the deltoid and trapezius muscles, a more closely anatomical result, and rapid mobilization, resulting in a generally excellent functional return. (6, 21, 26) Failure to repair the trapezius and deltoid muscles often predisposes to persistent pain and weakness. Conservative treatment often fails because the articular disk, frayed capsule or flakes of articular cartilage between the clavicle and acromion prevent reduction. (15) The distal end of the clavicle may pass through the fibers of the trapezius or deltoid muscles and be trapped in displacement. (6) Surgical intervention is needed in this case to reduce the separation.

Advocates of nonsurgical treatment note that retrospective reviews have not demonstrated superior

results by surgical technique. (14, 15) Imatini stated that if either of the techniques was superior to the other, it was nonoperative treatment. His research advocates the treatment of acute, complete acromioclavicular separation nonoperatively with short periods of immobilization and early rehabilitation of the shoulder. (14) Of thirty-one cases of separation treated with dynamic splint immobilization, only one required later surgery. (3) There is little difference in the result of nonoperative regimens. (14) Jacobs even states that the result of no treatment at all will be nearly the same as closed or open procedures. (15)

Powers and Bach state that there is no evidence in the literature that surgery for complete dislocations is better than nonoperative treatment. (21) The latter is the treatment of choice by the sports medicine physician at the University of Virginia. However, many orthopedists continue to operate, primarily because they were trained to do so, and also because their results are similar to nonoperative procedures. (21)

The surgical techniques seem to be as numerous as the orthopedic surgeons. (6, 7, 10, 14, 26, 28, 29, 30) Sixty percent use some form of temporary transacromioclavicular fixation. (21) The procedures generally either fix the reduced clavicle by means of a fixation device or by reconstruction using fascia. Some surgeons combine both of these techniques. The cannot fix the clavicle to the coracoid when coracoid fracture is present. (21, 25)

There are surgical complications, including pin migration and breakage, degenerative acromioclavicular arthritis, occasional recurrence of the deformity, and residual limitation of shoulder motion. (21)

Rehabilitation

Rehabilitation of the shoulder girdle following acromioclavicular injury begins with an evaluation of range of motion of the shoulder. Shoulder elevation, abduction, and forward flexion are usually limited, as the deltoid and insertion of the trapezius are often injured. Motion is observed in the following ranges: forward flexion, backward extension, horizontal flexion, horizontal extension, abduction, adduction, external rotation, internal rotation, and shoulder elevation. (figure 4)

Gentle painfree range of motion is begun in each of the above motions. In acute first and some second degree injury, ice may be applied simultaneously to relieve pain and muscle spasm. Transcutaneous nerve stimulation can also be considered as an adjunct to alleviate pain and muscle spasm. When complete painfree range of motion is achieved, heat is substituted for ice. Isometric exercise is initiated at beginning, halfway, and terminal painfree range of each of the nine motions. In abduction for example, the athlete may exhibit 90° painfree motion. The isometric exercise for abduction then is performed at 0°, 45°, and 90°. The athlete is instructed to resist only to the point of pain and not past. The athlete can thus build strength when he may be unable to lift a one pound weight.

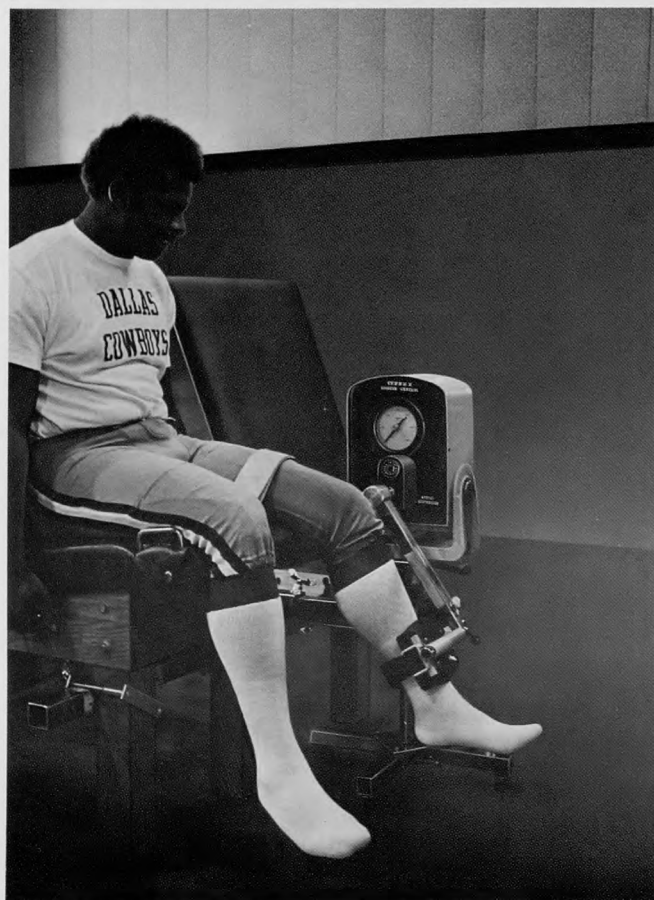
As the athlete progresses and becomes more painfree, he may begin using 1, 2½, 5 pound, and heavier weights in the same nine ranges of motion. The athlete may have to position himself prone, supine, side lying, or standing to utilize gravitational forces during lifting. Other exercises, as pain permits, may be the bench press, lat pull, bent knee rowing, shoulder shrugs, military press, pullovers, dips, pushups, and pullups. Resistive abduction exercises should be supervised initially to prevent shoulder shrugging. It has been the experience of the authors that the benchpress exercise with excessive or painful weight is detrimental to successful rehabilitation. Therefore, with the over-exuberant athlete, this exercise has been forbidden. He concentrates on the nine motion exercises.

During the period of rehabilitation, the authors have

Continued on page 28

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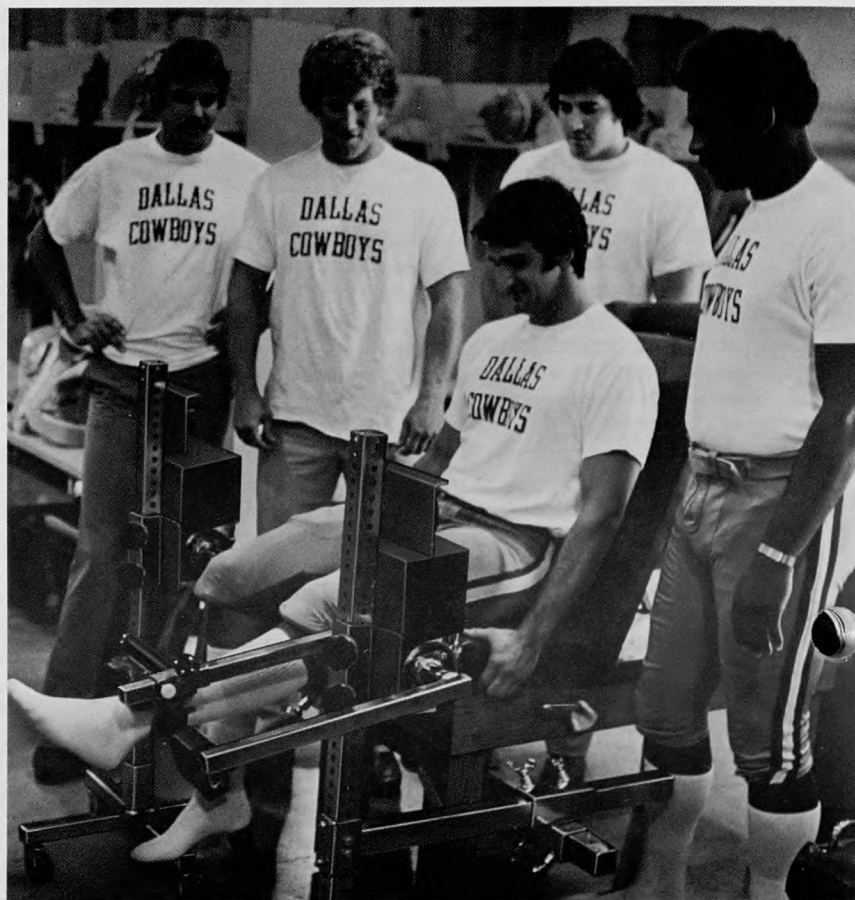
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found moist heat and ultrasound to be of benefit. These modalities are employed prior to exercise until the athlete is asymptomatic. The athlete should be encouraged to religiously perform his rehabilitative exercises until he is totally asymptomatic. Skipping sessions results in a less than optimal return. If this fact is explained, the achievement oriented athlete will be motivated to comply with the rehabilitation regimen.

Rehabilitation is complete when the athlete has regained total painfree strength, coordination, power, range of motion, and endurance. These parameters should be compared with baseline data recorded prior to injury, or with the uninjured shoulder. The final test of successful rehabilitation is return to painfree, skilled performance in athletic activity.

Dissatisfied patients complain more frequently of residual pain than restricted motion or deformity following acromioclavicular injuries. (15) Ten percent of the patients will experience pain regardless of the type of treatment. (21) However, Tossy states that many patients with old, untreated or inadequately treated Grade 3 separations have severe disability and discomfort. (26) Calcification within the capsular ligament or joint may occur. (19) O'Donohue classifies this condition as traumatic arthritis. (19) Tossy states that if these patients had been accurately diagnosed and treated by surgery originally, the final results would be different. (24) In these chronic cases, excision of the distal end of the clavicle is agreed upon. (8, 19, 26)

It behooves all practitioners of sports medicine, including orthopedic surgeons, team physicians, and athletic trainers, to select the method of treatment providing the optimal rehabilitation of an injury, including injuries to the acromioclavicular joint. Good results are rare in old, persistent cases. Thus prompt treatment of acromioclavicular joint injury is imperative. This treatment must be based upon accurate diagnosis and careful selection of the treatment regimen.

Summary

The acromioclavicular joint is predisposed to injury in athletics. The injury must be examined completely with consideration given to the mechanism of injury. There is considerable debate concerning open versus closed treatment of these injuries. In compliance with the principles of medical practice, and in recognition of potential medico-legal litigation, the sports medicine practitioner must make every effort to rehabilitate the injured acromioclavicular joint and its associated structures to their fullest potential.

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POTPOURRI

By Dennis Aten, ATC
EASTERN ILLINOIS UNIVERSITY

Taking the E Out of DHEW

Taken from APTA Newsletter is this interesting notice regarding federal administration organization. Since it applies to education it should be of interest to most athletic trainers.

"The Senate Governmental Affairs Committee has approved a bill that would take education out of the Department of Health, Education and Welfare (DHEW) and set up a new Department of Education. The new Secretary of Education would have full cabinet status, be appointed by the President with the consent of the Senate, and have command initially over approximately 24,000 employees.

The new department's first-year budget would be \$18 billion, with roughly \$13 billion coming from DHEW. Among programs switched over would be the \$912 million vocational rehabilitation programs, including education programs for handicapped children. Major transfers would also come from other governmental divisions, including the Department of Defense, National Science Foundation, Bureau of Indian Affairs, Department of Agriculture, and Department of Housing and Urban Development.

Congress seems to be giving bipartisan support to the formation of the new department, and most educational organizations are favorable to the reorganization. It is expected, however, that the Senate's Agriculture Committee will raise objections to transferring the \$3 billion child nutrition programs from the Department of Agriculture."

Dangerous Food and Drug Interactions

Would it occur to you not to swallow a tetracycline capsule with a glass of milk? Or to eat more green leafy vegetables if you are on the Pill? Probably not, but it should, warns the Food and Drug Administration (FDA); what you take with your medicine can dramatically change how it affects your body.

All food contains chemicals that can make certain drugs virtually useless, and some combinations can be extremely dangerous.

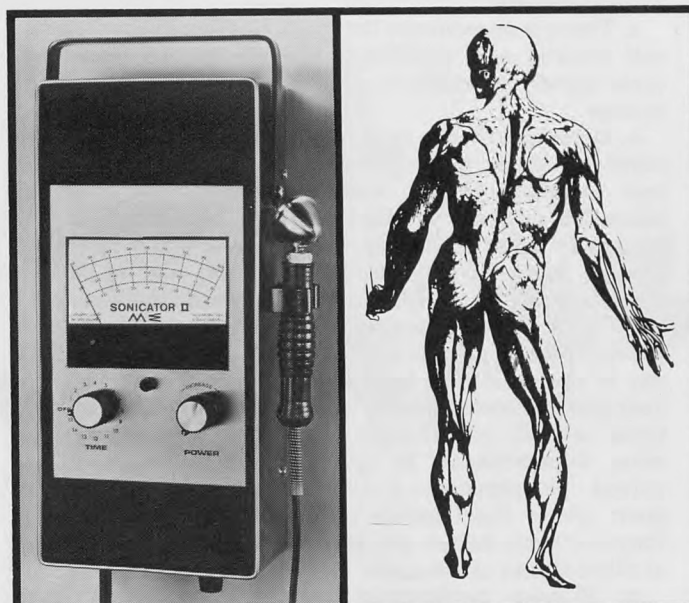
For instance, if you combine tetracycline and dairy products, the calcium interferes with your body's ability to absorb the tetracycline.

It's important for you and your doctor to talk about each drug you take. Ask whether you should take it on an empty stomach or just before meals. Find out what foods and drinks you should or should not take with your medication.

To give you a better idea of which combinations to watch out for, request your free copy of the FDA's Food and Drug Interactions by sending a postcard to: Consumer Information Center, Dept. 698F, Pueblo, Colo. 81009.

Physical Fitness and Research Digest on Menstruation

In 1975, as a contribution to a symposium on "Research Studies on the Female Athlete," Allan J. Ryan, M.D., (45) reviewed research pertaining to physical activity as related to various gynecological considerations. Conclusions he reached regarding women's participation in



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sports during the various phases of their menstrual cycles were as follows:

a. There is no evidence that participation in sports by itself invokes any significant changes in the menstrual cycle, either favorable or unfavorable, for the majority of women.

b. Dysmenorrhea is apparently neither aggravated nor cured by sports participation, although it appears to be less common among women athletes and physical education professional students than for those who are physically inactive. Its appearance and severity appear to depend more on psychological factors, and it seldom prevents a high level woman athlete from competing.

c. Physical performances by women seem to be best in the immediate postmenstrual period and up to the 15th day of the cycle. The number of women who experience poor performances during menses is about the same as those who do not change; a much smaller percentage notes improvement. In sports where endurance is involved, performances during menstruation tend to be poor; where short bursts of activity only are required, they are much better and may exceed best performances at other stages of the cycle.

d. Women performing during menstruation have achieved record-breaking and medal-winning performances. Top class athletes will almost invariably compete during menses, although some of them do not train at this time.

e. Girls and women should not look on menstruation as a sickness, especially as it relates to physical education and sports. Full participation should be allowed at all times for those who desire to be active during menses and know by experience that they will not have unpleasant symptoms and that their performances are not necessarily poor at that time. No girl or woman, however, should be coerced

into participation or ordered to participate during this period.

f. Postponement of menstruation by the use of hormones is sometimes possible but tends to lead to worse symptoms which impair the ability of the athlete to compete more than might be expected from any effects menstruation might have.

New Booklet Available

"What Everyone Should Know About Orthopaedic Surgery," the handy patient information booklet for orthopaedist's office use, has been rewritten and illustrated under the guidance of the Committee on Public Education.

The booklet, which includes information on orthopaedists' training and orthopaedic disease diagnosis and treatment, is available at 20 cents per copy by writing the American Academy of Orthopaedic Surgeons, Box 7195, Chicago, Illinois 60680. Checks or money orders made payable to the Academy must accompany orders unless a purchase order is included.

What Do We Owe the Fan?

James Ehinger, M.D. has indicated by his comments in May, 1978 issue of *Emergency* that athletic arenas and other large entertainment centers have adequate facilities and staff to handle emergency needs of spectators and/or audience.

He feels that the team physician can not realistically be expected to handle crowd emergencies as their primary responsibilities rest with the athlete. Concern was also evident regarding Rock Concerts. Overdose potential apparently can produce a highly volatile situation. Who is responsible for providing emergency medical service for overdose victims in crowded places? — The facility management? — The entertainment sponsor? — The entertaining group?

The questions this brings to mind are: How many of us, as athletic trainers, develop a medical station for fans at our own athletic facilities? Should we be involved in developing such a facility and/or service? Should our responsibility be extended to operate such a facility?

Comments on this topic are encouraged.

CPSC Aids Schools in Teaching Product Safety

Consumer Product Safety Commission has developed an educational program to reduce the more than 10 million product-related injuries and deaths annually to children younger than age 16.

This fall, school systems will use educational materials prepared by CPSC's Consumer Education and Awareness Division (CEAD) to instruct classes in toy and bike safety, flammable products and ignition sources, safe use of playground and children's nursery equipment, poison prevention and power equipment safety. The goal is to raise the students' awareness of consumer product safety, an effort toward educating a future population of adults who are more safety-minded and who are well-equipped to pass along basic safety messages to their children.

Elizabeth Johnson, the Division's Deputy Director, hopes eventually to reach "every one of the nation's more than 100,000 public and private schools with teaching aids on product safety." "It's a dream which could prevent most injuries," she points out.

Another area of interest is CPSC's stand on some products linked to cancer. Serious consideration will be given to banning the use of benzene in certain consumer products. Exposure to benzene has been linked with leukemia, blood disorders and genetic abnormalities.

ATTENTION

Seminar on Isokinetic Testing, Rehabilitation and Exercise

Again in 1979 the CYBEX Division of Lumex, Inc. is sponsoring seminars on testing, rehabilitation and exercise using Isokinetic systems. The first of these continuing education seminars for physicians, physical therapists and athletic trainers will be at the Sheraton Hotel in Scottsdale, Arizona, April 19-21. The other will be held at the Orlando Hyatt House, Kissimmee, Florida, April 26-28. This year's topics are orthopedics, sports medicine and compensation and personal injury. For program and registration information contact: Karen Heidemann, CYBEX Division of Lumex, Inc., 100 Spence Street, Bay Shore, N.Y., 11706 (516) 273-2200.



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

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

1. This contest is open to all student members of the NATA.
2. Papers must be on a topic germane to the profession of athletic training and can be case reports, literature reviews, experimental reports, analysis of training room techniques, etc.
3. Entries must not have been published, nor be under consideration for publication by any journal.
4. The winning entry will receive a \$100.00 cash prize and be published in *Athletic Training* with recognition as the winning entry in the Annual Student Writing Contest. One or more other entries may be given honorable mention status.
5. Entries must be written in journal manuscript form and adhere to all regulations set forth in the "Guide to Contributors" section of *Athletic Training*. It is suggested that before starting students read: Knight K L: Preparation of Journal Manuscripts. *Athletic Training* 11: 171-173, 1976. NOTE: A reprint of this article can be obtained by writing to either the author (at the address below, or from Rod Compton, Editor-in-Chief, *Athletic Training*.)
6. Entries must be received by March 1. Announcement of the winner will be made at the Annual Convention and Clinical Symposium in June.
7. The Writing Contest Committee reserves the right to make no awards if in their opinion none of the entries is of sufficient quality to merit recognition.
8. An original and two copies must be received at the following address:

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

Summertime Employment For The Athletic Trainer

By

PERRY S. ARCHIBALD A.T.C.
Idaho State University

Many athletic trainers and college student athletic trainers may find themselves with little actual athletic training employment during their school's summer vacation. Every year, professional baseball organizations, such as the San Francisco Giants and New York Yankees, must employ athletic trainers for their rookie league or summer Class A baseball team. Surprisingly, many of the professional baseball minor league farm directors must hire the minimally - educated athletic trainers because of the lack of qualified trainers applying for such summer employment.

This type of professional baseball athletic trainer is usually employed from early June through the end of August. The beginning salary ranges from \$600.00 to \$800 per month and \$7.00 to \$10.00 daily meal allowance when on road trips. The major league baseball affiliate, who employs the trainer will provide transportation before the season to where the trainer will work and provide transportation back to trainer's home at the completion of the season. The job can also produce additional income if the

athletic trainer wishes to do the clubhouse manager duties, this is taking care of the equipment, uniforms and clubhouse maintenance.

The baseball athletic trainer is primarily responsible for the prevention and care of baseball-related injuries to 20 or 30 baseball players who are usually 17 to 23 years old. The job is excellent for the older college-age student trainer or the young athletic trainer seeking beginning independent work experience in athletic training. The job will entail working with the field manager and/or coach(s), the general manager, management of the major league affiliate, and the team physician(s). The job provides excellent exposure to baseball athletic training; peculiarly in the area of prevention and care of arm - shoulder injuries. If the baseball trainer's work impresses the management of the professional baseball organization, the employed trainer could be offered a higher level athletic trainer's position in the future.

These are the addresses of the minor league farm directors who usually hire the athletic trainer:

Atlanta Braves

Mr. Bill Lucas
Director of Player Personnel
Atlanta National League Baseball Club Inc.
P.O. Box 4064
Atlanta, Georgia 30302

Baltimore Orioles

Mr. Clyde Kluttz
Director of Player Development
Baltimore Baseball Club Inc.
Memorial Stadium
Baltimore, Maryland 21218

Boston Red Sox

Mr. Edward F. Kenny
Director of Player Development
Boston Red Sox
Fenway Park
24 Yawkey Way
Boston, Massachusetts 02215

California Angels

Mr. Mike Port
Director Player Development
Golden West Baseball Company
2000 S. State College Boulevard
P.O. Box 2000
Anaheim, California 92803

Chicago Cubs

Mr. C.V. Davis
Director Player Development
Chicago National League Ball Club Inc.
1060 W. Addison St.
Chicago, Illinois 60613

Chicago White Sox

Mr. Charlie Evranian

Assist. Director Player Development
Chicago White Sox Baseball Club Inc.
Dan Dyan at 35th Street
Chicago, Illinois 60616

Cincinnati Reds

Mr. Sheldon Bender
Director of Player Personnel
Cincinnati Reds Inc.
100 Riverfront Stadium
Cincinnati, Ohio 45202

Cleveland Indians

Mr. Robert E. Quinn
Director of Minor League Operations
Cleveland Indians Co.
The Stadium - Gate A
Boudreau Boulevard
Cleveland, Ohio 44114

Detroit Tigers

Mr. Walter A. Evers
Director of Player Development
John E. Fetzer Inc.

Perry Archibald received his B.A. from Idaho State University in 1975 and in 1978 received a M.A. from I.S.U. in Athletic Adm.-Athletic Training. Presently, he is the head athletic trainer for the Shreveport, La. Captains (San Francisco Giant baseball team) which is in the Texas League.

Tiger Stadium
Detroit, Michigan 48216

Houston Astros
Mr. William J. Wood
Assistant Director of Minor League Clubs
Houston Sports Association Inc.
The Astrodome
P.O. Box 288
Houston, Texas 77001

Kansas City Royals
Mr. Dick Balderson
Assistant Farm Director
Kansas City Royals Baseball Corp.
P.O. Box 1969
Kansas City, Kansas 64141

Los Angeles Dodgers
Mr. William P. Schweppe
Vice President, Minor League Operations
Dodger Stadium
1000 Elyston Park Ave.
Los Angeles, Calif. 90012

Milwaukee Brewers
Mr. Anthony G. Siegle
Farm Director
Milwaukee Brewers Baseball Club
Milwaukee County Stadium
Milwaukee, Wisconsin 53214

Minnesota Twins
Mr. George Brophy
Vice President, Farm Director
Minnesota Twins Inc.
8001 Cedar Avenue South
Bloomington, Minnesota 55420

Montreal Expos
Mr. James Fanning
Vice President, Player Development
Montreal Baseball Club, Ltd.
P.O. Box 500
Station M
Montreal, Quebec, Canada H1V 3P2

New York Mets
Mr. Pete Gebrian
Director of Minor League Operations
Metropolitan Baseball Club Inc.
Shea Stadium
Flushing, N.Y. 11368

New York Yankees
Mr. Jack Butterfield
Vice President, Player Development
New York Yankees
Yankee Stadium
Bronx, New York 10451

Oakland Athletics
Mr. Norm Koselke
Farm Director
Oakland Athletics
Oakland-Alameda County Coliseum
Oakland, California 94621

Philadelphia Phillies
Mr. G. Dallas Green
Director of Minor Leagues
Philadelphia National League Club
P.O. Box 7575
Philadelphia, Pa. 19101

Pittsburgh Pirates
Mr. Murray Cook
Director of Minor League Clubs
Pittsburgh Athletic Company Inc.
Three Rivers Stadium
600 Stadium Circle
Pittsburgh, Pa. 15212

St. Louis Cardinals
Mr. Jim Bayens
Director of Player Development
St. Louis National Baseball Club Inc.
250 Stadium Plaza
St. Louis, Missouri 63102

San Diego Padres
Mr. Jim Weigel
Director Minor League Operations
San Diego National League Baseball Club Inc.
P.O. Box 2000

9449 Friars Road
San Diego, California 92120

San Francisco Giants
Mr. John S. Schwartz
Director of Minor League Operations
San Francisco Baseball Club
Candlestick Park
San Francisco, California 94124

Seattle Mariners
Mr. Stave Schryver
Asst. Director of Minor Leagues
Seattle Baseball Club
P.O. Box 4100
Seattle, Washington 98104

Texas Rangers
Mr. Hall Keller
Farm Director
The Texas Ranger Ltd.
Arlington Stadium
P.O. Box 1111
Arlington, Texas 76010

Toronto Blue Jays
Mr. David Honderich
Assist. Administrator, Player Personnel
Toronto Blue Jays Baseball Club
P.O. Box 7777
Adelaide St.
Exhibition Stadium
Toronto, Ont., Canada M8Y 1N8

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Johnson City, Tenn.
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Paintsville, Ky.

New York-Penn. League
Auburn, N.Y.
Batavia, N.Y.
Elmira, N.Y.
Geneva, N.Y.
Jamestown, N.Y.
Little Falls, N.Y.
Newark, N.Y.
Niagara Falls, N.Y.
Oneonta, N.Y.
Utica, N.Y.

Pioneer League
Billings, Mont.
Butte, Mont.
Calgary, Alberta, Canada
Great Falls, Mont.
Helena, Mont.
Idaho Falls, Idaho
Lethbridge, Alberta, Canada
Medicine Hat, Alberta, Canada

Gulf Coast League
Bradenton, Fla. (Braves)
Bradenton, Fla. (Cubs)
Bradenton, Fla. (Pirates)
Sarasota, Fla. (Astros)
Sarasota, Fla. (Rangers)
Sarasota, Fla. (Royals)
Sarasota, Fla. (White Sox)

Northwest League
Bellingham, Wash.
Bend, Oregon
Boise, Idaho
Eugene, Oregon
Grays Harbor, Wash.
Salem, Oregon
Victoria, B.C. Canada
Walla Walla, Wash.

Western Carolina League
Asheville, N.C.
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The Hinton-Boswell Method Of Preventive Ankle Taping

by
STEVEN GEORGE HINTON
Head Trainer, Sunnyside High School
Tucson, Arizona

Editor's Note:

Steven Hinton wrote a letter to the editor which appeared in the Fall 1978 Journal introducing a new method of ankle taping. According to Steven, inquiries for details of the taping method were so great that he developed this tip from the field for the Journal.

Inversion sprains of the Anterior Talofibular ligament is one of the most common injuries in athletics. It often occurs even though the athlete has been taped in the traditional 90 degrees of dorsiflexion. So after a great deal of time, study, and experimentation Bob Boswell (Head trainer at Modesto Junior College) and I have developed a method of taping that is done with the foot in relaxed plantarflexion.

This method is designed to limit inversion when the foot is in the most vulnerable position for the ankle. More specifically it is designed to reinforce the Anterior Talofibular ligament, because it is most frequently injured. Unlike traditional methods this method does limit inversion without inhibiting plantarflexion. This method has been used over 500 times on athletes with a history of chronic inversion sprains or had suffered a recent acute sprain. It has been very successful.

The advantages of this method of taping when compared to traditional methods are: (a) Inversion is limited in the ankles most vulnerable position; (b) normal plantarflexion and dorsiflexion are allowed; (c) there is very little pressure on the Achilles tendon, something which can accompany heel locks, Louisiana heel locks, and figure eights; (d) it requires approximately one-half roll of tape per ankle.

Materials Required:

Lubricated heel and lace pads
1½ inch athletic tape

Instructions:

The ankle should be shaved to the base of the Gastroc-soleus group. No pre taping wrap is used. Begin with the foot dorsiflexed to 90 degrees, later the athlete will be asked to relax and allow the foot to plantarflex.

Steven Hinton received his B.A. in Physical Education from California State University, Fresno in 1977. He is currently in the Graduate Athletic Training Program at the University of Arizona.

Step 1 (Figure 1): Two anchor strips placed at the base of the Gastroc-Soleus group.

Step 2 (Figure 2): The first stirrup applied bisecting the malleoli on both sides. It is applied with firm upward pressure toward the lateral side.

Step 3 (Figure 3): The second stirrup is applied with a one-half anterior overlap of the first. It is applied with the same pressure and in the same manner. Both of these first two stirrups serve to equalize pressure on the lateral side of the foot.

Step 4 (Figure 4): The athlete is asked to relax and allow his foot to plantarflex. Check for relaxation by manually moving the foot. The foot must be relaxed to allow it to be pulled into eversion in the next steps.

Step 5 (Figure 5): The first of four figure sixes is applied. This is done by beginning a piece of tape directly over the area of the Anterior Talofibular ligament, it slightly overlaps the second stirrup. It is pulled across the dorsum of the foot, down and laterally through the arch, then up on the lateral side of the ankle. This strip overlaps the anterior one-half of the second stirrup as it is pulled up the side of the ankle. There is a crimp placed in the posterior edge of this strip just as it crosses the lateral aspect of the heel. This figure six is applied with enough pressure to slightly evert the foot.

Step 6 (Figure 6): The second figure six is applied in the same manner as the first, except no crimp. It half overlaps the anterior aspect of the first. If done properly you should see some puckering of the first as you apply the second.

Step 7 (Figure 7): The third figure six overlaps the anterior one-half of the second. It will completely cover the head of the Fifth Metatarsal. This strip finishes on the antero-medial aspect of the leg, rather than the anterior or antero-lateral aspects.

Step 8 (Figure 8): The fourth figure six overlaps the anterior one-half of the second and the posterior one-half of the third. It finishes with a similar relationship on the leg.

Step 9 (Figure 10): The closing strips are applied with the

foot dorsiflexed. They are more easily applied in this position. Begin at the heel and work up with one-half overlaps.

Step 10 (Figure 12): One or two closing strips around the foot to cover the loose ends.

Summary

It is inherent in this method that there will be wrinkles, and a hole on the medial aspect of the foot. There has been no problem with blisters or tape cut because of this. For recent sprains it has not been necessary to add anything for greater reinforcement.

Again this method uses approximately one-half roll of tape. It does not place pressure on the achilles tendon. Plantarflexion and dorsiflexion are not inhibited. Inversion is limited when the ankle is most vulnerable: in plantarflexion.

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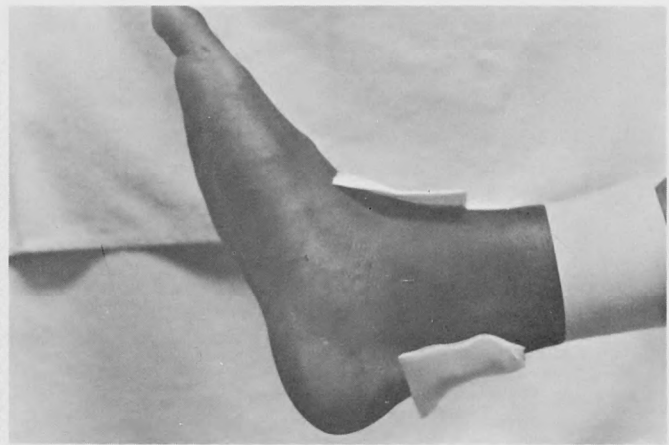


Figure 1: The ankle has been shaved, lubricated pads are in place, and two anchors have been applied.



Figure 2: The first stirrup bisecting the malleoli covers the lower half of each.

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Figure 3: The second stirrup bisects the malleoli, covers the upper half of each.

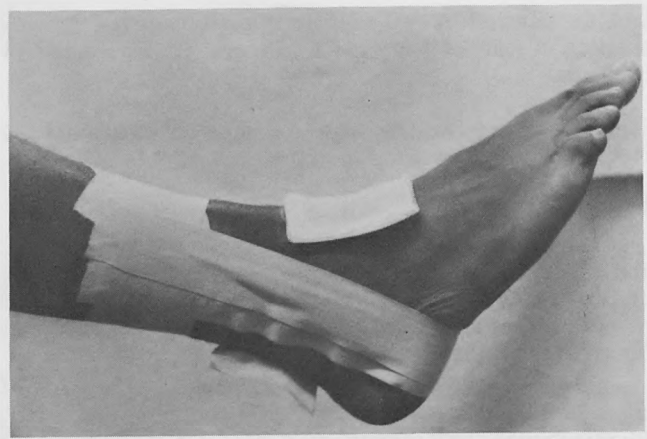


Figure 4: The athlete has relaxed allowing the foot to plantarflex.

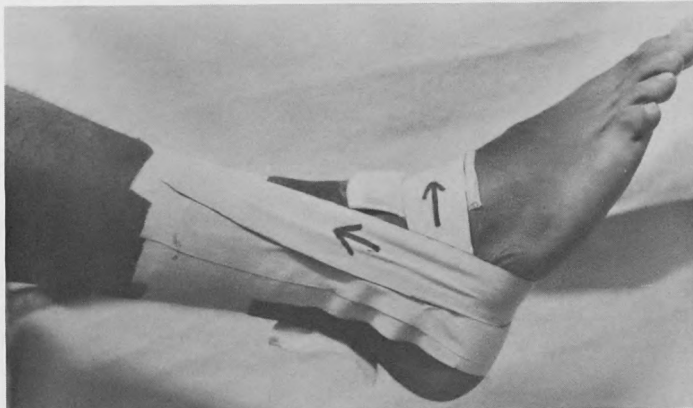


Figure 5: The first figure six. Begun over the anterior Talofibular Lig. Crimped at the lateral edge of the heel. Finished on antero-lateral leg.

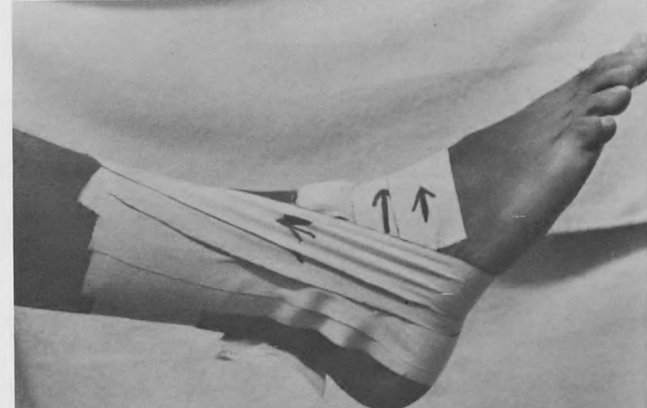


Figure 6: The second figure six bisects the first, covers the upper half, finishes on the anterior leg.

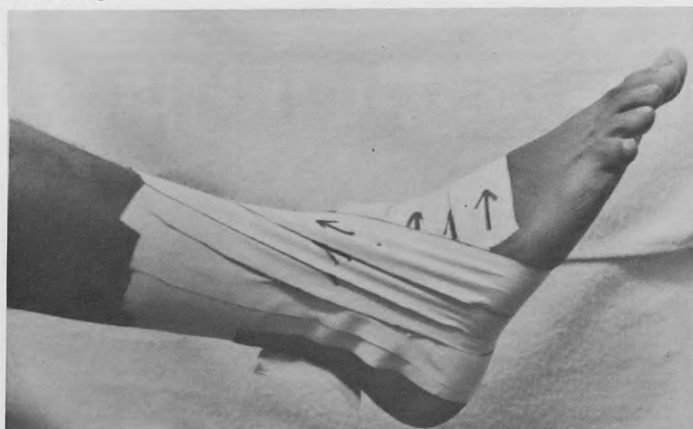


Figure 7: The third figure six, bisecting the second, finishing on the antero-medial leg.

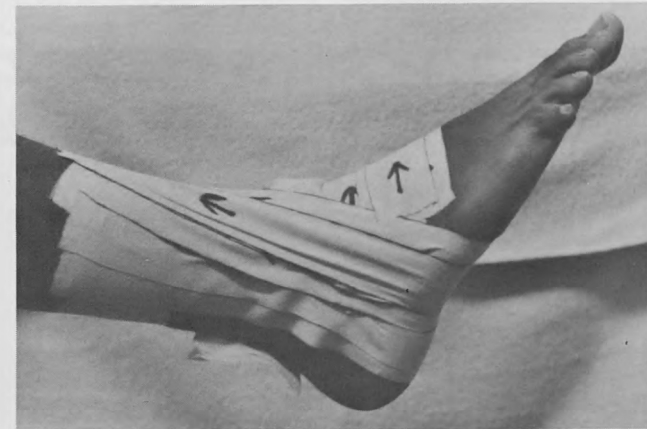


Figure 8: The fourth figure six, bisecting the upper half of second and lower half of third.

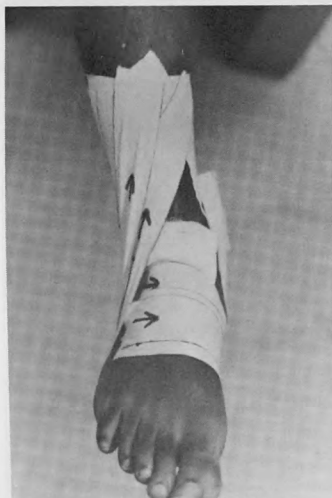


Figure 9: The placement of the third and fourth figure sixes.

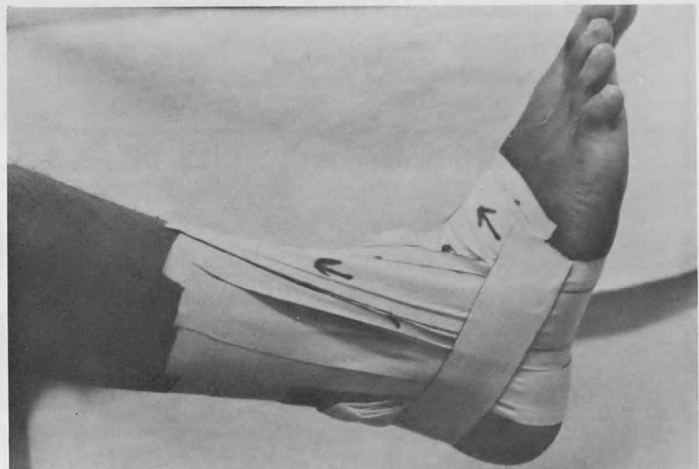


Figure 10: The first closing strip.



Figure 11: Shows completed closing up the leg.

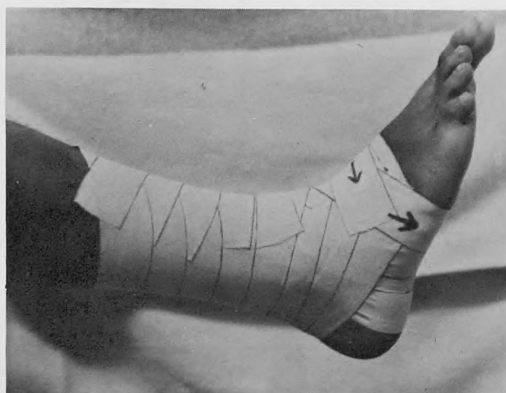


Figure 12: The closing strip around the foot.

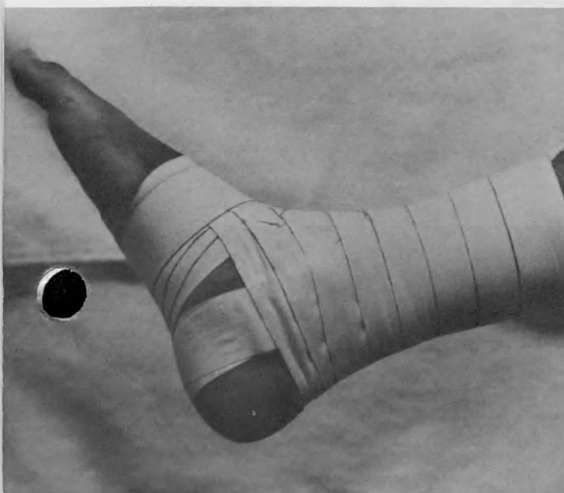


Figure 13: Shows the gap which is normal in this method.

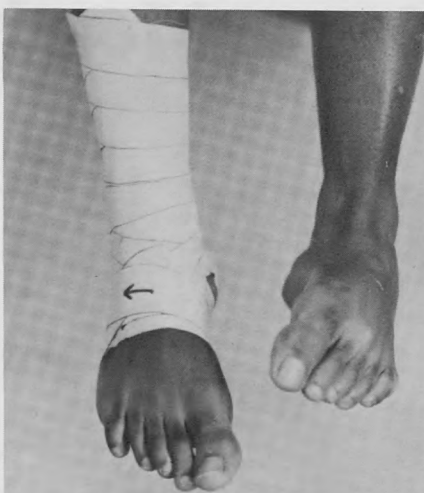


Figure 14: A comparison between inversion of taped and untaped ankles.

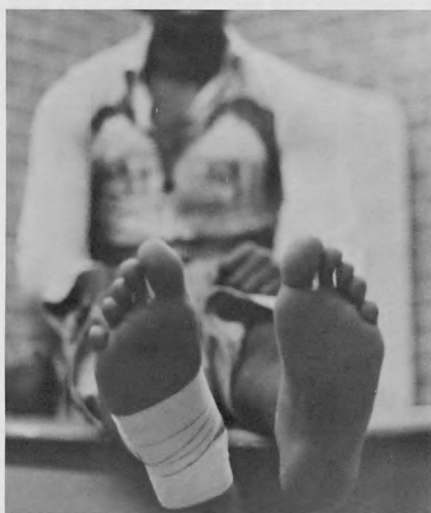


Figure 15: Shows how far up the foot the tape job runs.

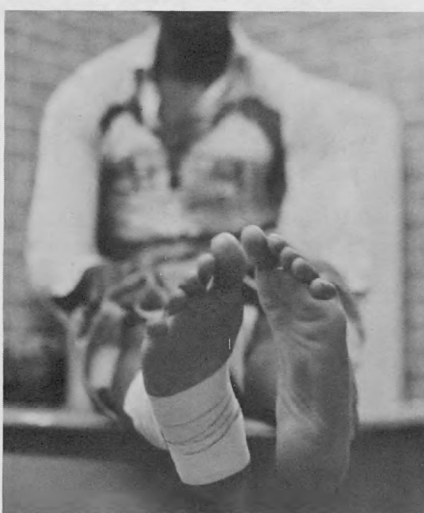


Figure 16: Another comparison of inversion between taped and untaped.

Editor's Note: Anyone wishing to have an idea, technique, etc., considered for this section should send it to Rod Compton, Sports Medicine Division, East Carolina University, Greenville, N.C. 27834. Copy should be typewritten, brief and concise, using high quality photos and/or illustrations.

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Esophageal Airway — An Alternative to Mouth-To-Mouth

by
WAYNE S. SMITH, B.S., R.P.T., A.T.C., C.E.M.T.
Assistant Athletic Trainer
Hayfield Secondary School
Fairfax, Virginia

Edited by
DR. DAVID HOUGH
Team Physician
Michigan State University

In the unconscious athlete who is not breathing, maintaining an open airway is the most important factor in successful artificial ventilation. Currently, trainers have been instructed in mouth-to-mouth resuscitation techniques. The esophageal obturator airway is an alternative to mouth-to-mouth resuscitation for the unconscious athlete. The unit was invented in 1968 by Dr. Don Michael, with additional modification by Dr. Archer Gordon (2), and has been used by emergency personnel since 1973. (1)

The esophageal airway unit consists of a mask, breathing tube, an inflatable cuff, and a 35 cc plastic syringe. The mask is composed of plastic with a rubber seal to prevent air leakage. There is a 15 mm hole in the center through which the breathing tube is inserted. The tube is a modified endotracheal tube with perforation in the area of the larynx. Located at the end of the tube are the inflatable cuff and the soft plastic obturator tip which seal the tube.

The principle of the esophageal obturator airway is fairly simple. The airway is used to intubate the esophagus instead of the trachea. The airway's cuff, when inflated, occludes the esophagus but not the trachea, thus avoiding stomach distension and aspiration of stomach contents by the unconscious athlete. Air is delivered

through the tube via the holes at the pharynx. Blocked at the distal end, the air passes into the trachea and lungs.

The procedures for inserting the esophageal airway are as follows:

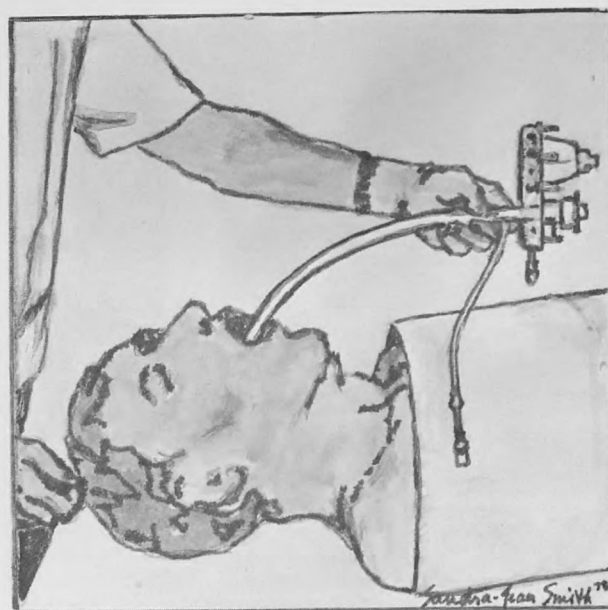


Figure 1

Wayne Smith is a graduate of California State University at Long Beach, 1975 with B.S. in Physical Therapy. He is currently Acting Deputy Chief, Physical Therapy Department, U.S. Public Health Outpatient Clinic, Washington, D.C., and Assistant Athletic Trainer, Hayfield High School, Fairfax, Virginia.

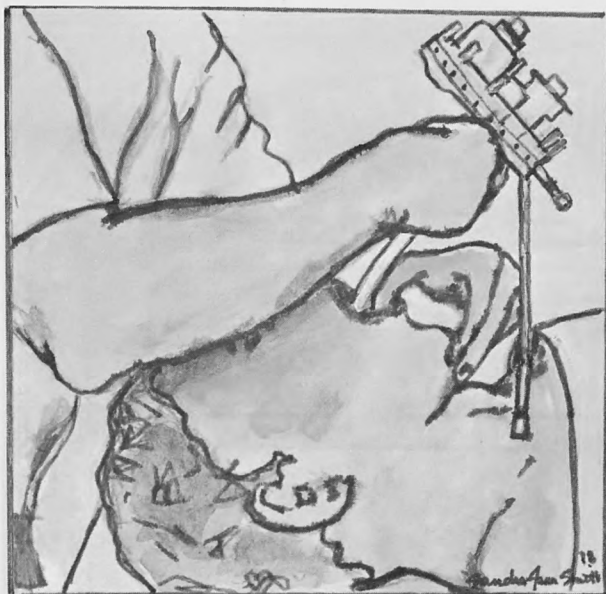


Figure 2



Figure 3

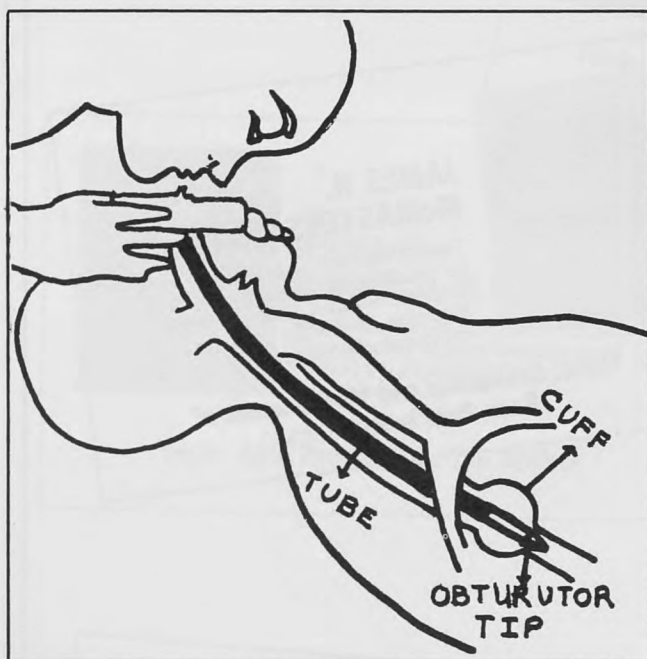


Figure 4



Figure 5

A. The trainer clears the airway first and then places the athlete in a supine position and begins mouth-to-mouth ventilation.

B. The trainer then grasps the jaw with thumb and index finger and lifts straight up. With the other hand, the trainer inserts the lubricated tip of the esophageal obturator airway in the same direction as the natural curvature of the pharynx. (Fig. 1. & Fig. 2.)

C. Next, the trainer advances the airway tube into the esophagus until the mask is placed firmly over the mouth and nose. The trainer holds the mask firmly with both hands and blows into the tube. (Fig. 3. & Fig. 4.)

D. Once the airway is properly placed, the cuff is inflated with the 35 mm syringe between respirations. (Fig. 5.)

Certain points should be kept in mind when using the esophageal airway. First, it is intended for emergency use for the unconscious person who is not breathing or is in a deep coma. Second, mouth-to-mouth airway or bag to airway resuscitation must be continued until spontaneous

ventilation returns. Third, once the athlete begins to regain consciousness, he should be placed on his side and the cuff should be deflated and the tube removed. At this time, the trainer should be aware of possible vomiting while removing the tube.

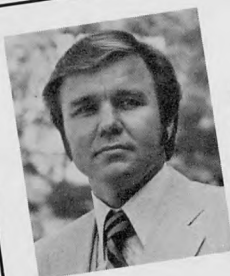
Although the esophageal airway is simple to use, proper instruction under medical supervision is necessary. Purpose of this article is only to introduce its capabilities in the field of athletic training.

BIBLIOGRAPHY

- 1 Field, G.Z., "The Esophageal Airway," Emergency Product News. January/February, 1977.
- 2 Gordon, A., Don Michaels, T.A., "Esophageal Obturator Airway," Presented at National Conference on Standards for CPR and Emergency Cardiac Care at National Academy of Sciences in Washington, D.C. May 16, 1973.
- 3 E.M.T. Training Course Notes: Prince William County, Virginia. June 1978.

ON THE DRAWING BOARD FOR '79

NATA 30th ANNUAL MEETING AND CLINICAL SYMPOSIUM



**RICHARD T.
BALL**

Senior member of the Law Firm of Ball and Grant. Special counsel on Product Liability to Riddell, Inc. and American Baseball Cap Co.

Topic: Litigation: Will It Destroy Athletics?



**JAMES H.
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Team Physician University of Pittsburgh. Director, Department of Orthopedic Surgery Division of Sports Medicine, University of Pittsburgh, Pittsburgh, Pennsylvania.

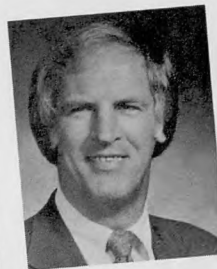
**Topic: Evaluation and Management of
Back Pain in Athletics**



**JOSEPH C.
MAROON, M.D.**

Chief of Service, Department of Neurosurgery Presbyterian-University Hospital. Consulting Neurosurgeon University of Pittsburgh Football Team. Associate Professor, Department of Neurological Surgery, University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania.

Topic: Head and Neck Injuries in Athletics



**WILLIAM G.
WHEELER, M.D.**

Team Physician University of Kentucky, Lexington, Kentucky. Clinical Instructor Surgery University of Kentucky School of Medicine.

**Topic: Diagnosis and Treatment of Hand and
Wrist Injuries in Athletics**



**JACK
ROCKWELL, A.T., C**

Director, Sports Medicine and Research Center, United States Sports Academy, Mobile, Alabama. Former Head Trainer St. Louis Football Cardinals and Southern California Sun.

Topic: Rehabilitation of Low Back Injury



**PORKY
MORGAN, A.T.C.**

Head Athletic Trainer Kansas State University, Manhattan, Kansas. Morgan, a 1974 inductee into the Helms Hall of Fame, brings more than 24 years of training experience to a panel of well known athletic trainers.

Topic: Panel Moderator "Tips From The Top"



**JOE
GIECK, A.T.C.**

Curriculum Director, Head Athletic Trainer Division of Sports Medicine and Athletic Training, University of Virginia, Charlottesville, Virginia.

Topic: Rehabilitation, Special Taping, and Pads for Hand and Wrist Injuries



**T.A. "TAB"
BLACKBURN**

Chief, Sports Medicine Section. Rehabilitation Services of Columbus, Inc. Columbus, Georgia. Consultant in Sportsmedicine to Columbus College, Auburn University, Troy State University, and Livingston State University.

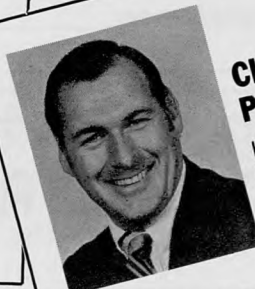
Topic: Use of Electrotherapeutic Modalities



**WILMA F.
BERGFELD, M.D.**

Head, Section of Dermatopathology, Departments of Dermatology and Pathology, Cleveland Clinic, Cleveland, Ohio.

Topic: Skin Problems In The Athlete



**CHRIS
PATRICK, A.T.C.**

Head Athletic Trainer, University of Florida. District Director N.A.T.A. District Nine, 1967-1969, Trainer Blue-Grey Classic 1967-1969. Trainer American Bowl 1971.

Topic: Prevention of Heat Problems in Football

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Head Trainer, Florida State University, Tallahassee, Florida. Fauls has been a trainer for the U.S. Pan American Team and a Member of the Olympic Trainers Selection Committee.

Topic: Rehabilitation of the Shoulder



**CHARLES
MARTIN, A.T.,C**

Head Athletic Trainer, Northeast Louisiana University, Monroe, Louisiana. Published research on the effects of heat, humidity, and exercise in *Sports Illustrated* and *Physician and Sports Medicine*.

Topic: Prevention of Heat Problems



**ROY DON
WILSON, A.T.,C.**

Head Trainer, University of Southwestern Louisiana, Lafayette, Louisiana. Assistant Director District Nine N.A.T.A. Former Chairman Kentucky Legislative Committee for Trainers.

Topic: Licensure Panel Member

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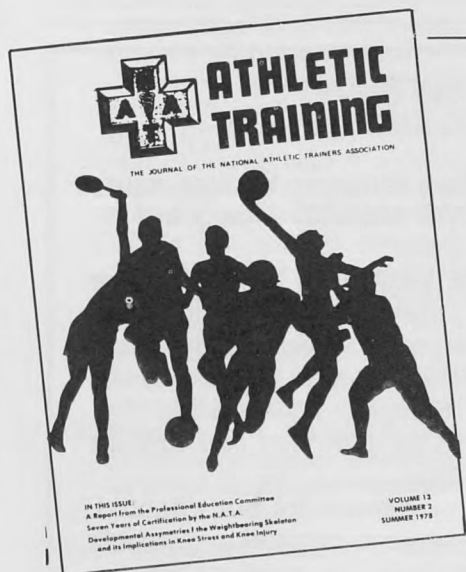
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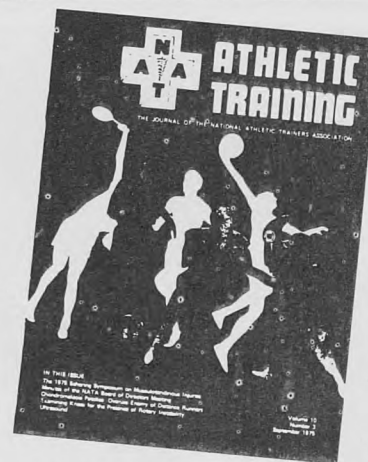
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**NATIONAL ATHLETIC TRAINERS ASSOCIATION
CONTINUING EDUCATION PROGRAM**

In accordance with the NATA Board of Directors at its meeting on June 13, 1973 at Atlanta, Georgia and further revised at its mid-year meeting on January 17, 1974 at Chicago, Illinois and its meeting on June 9, 1974 at Kansas City, Missouri, the following became part of the NATA By-Laws:

Implementation of the NATA program of continuing education will take place on January 1, 1976. (Due to delays now changed to January 1, 1979 at Board of Directors meeting in Las Vegas, Nevada, June 1978.) During the period of time prior to implementation selected programs may be used as a test vehicle to facilitate future applications.

The continuing education requirements will become effective for the Certified Athletic Trainer January 1st of the year following the year in which certification is awarded.

A person who is once certified as an Athletic Trainer (ATC) remains certified as long as he or she meets the minimum requirements for continuing education and only as long as such requirements are met.

In addition, all associate members must meet the same minimum requirements for continuing education as that required for the Certified Athletic Trainer to be eligible for continuance of Associate Membership (Implementation will be delayed until January 1st, 1982 as per Board of Directors meeting at Las Vegas, Nevada June 1978.)

Units of continuing education shall be defined and designed by the Professional Education Committee and approved by the Board of Directors. Where it is applicable, the continuing education unit (CEU) will be adopted as the unit of measurement to meet the continuing education requirements of the Certified Athletic Trainer and the associate members of the NATA. The continuing education unit (CEU) is defined as "ten contact hours of participation in an organized continuing education experience under responsible sponsorship, capable direction, and qualified instruction" (10 contact hours = one CEU). To maintain Certification or Associate membership the minimum num-

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ber of units to be accumulated every three (3) years shall be 6 CEU's. (Originally 9, changed to 6 at June 1977 Board Meeting)

A Certified Athletic Trainer or NATA Associate member is responsible for sending to the NATA National Office proof of completion of any continuing education units (CEU's) and activities to be used in updating his record in a recommended period of 30 days after completion.

A certified Athletic Trainer who does not accumulate a recorded number of 6 CEU's every three (3) calendar years shall have his certification suspended. Any action taken by the membership committee affecting the status of an A.T.C. as relating to Continuing Education may be appealed to the Subcommittee on Continuing Education. Following this appeal a final decision shall be given.

In accordance with this action of the Board of Directors, the Professional Education Committee has developed the following definitions of acceptable continuing education for Certified Athletic Trainers and Associate* members of the NATA:

I. Each Certified Athletic Trainer shall complete 6 CEU's of acceptable continuing professional education every three (3) years.

II. Categories

A. **NATA Annual National Meeting:** 2 CEU's for registration of each annual national meeting of the NATA.

B. **Scientific Workshops Offered At The NATA's Annual National Symposium:** 1 CEU for every 10 contact hours of workshop. (1 contact hour = .1 CEU).

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

D. **NATA Approved Short Term Courses:** Clinics, workshops, seminars or NATA approved courses, etc. endorsed by the Professional Education Committee at least 30 days in advance of the date of the program will be awarded one CEU for every 10 contact hours of scientific program content. (1 Contact hour = .1 CEU).

E. **Scientific Meetings Approved By The Professional Education Committee:** (Ex: American Medical Association, American Academy of Orthopedic Surgeons, American College Health Association, American College of Sports Medicine, American Association of Health, Physical Education and Recreation, American Physical Therapy Association, etc.) One CEU will be awarded for every 10 contact hours of approved content. (1 contact hour = .1 CEU).

F. **Publication Of Original Work:** Publication of an original paper in the NATA's quarterly publication *Athletic Training*, will be awarded 1.5 CEU's per original paper. One CEU will be awarded per original publication in a state or national scientific journal or publication of a related professional organization.

G. **Program Participation:** Credit units will be awarded for the presentation of an original paper or program participation at district or national level NATA meetings or related professional meetings. One CEU will be awarded for each presentation or participation.

H. **Promotion Of Athletic Training To Other Groups:** The presentation of athletic training to non-related organizations and civic groups will be awarded .5 CEU per presentation.

*Not effective until January 1, 1982.

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- I. **Teaching Of Athletic Training Courses:** 0.5 CEU's will be awarded for each credit hour of actual teaching that is not part of your job description, not to exceed 1 CEU per year.
- J. **Student Trainer Supervision:** .5 CEU per year will be awarded for supervision of a student trainer program for a full academic year. If more than one athletic trainer (Certified or Associate) is supervising the student trainer program, each receives equal credit.
- K. **Postgraduate Study:** Hours spent in postgraduate study in athletic training or related fields may be submitted as units of credit for consideration by the Professional Education Committee. .5 CEU will be awarded for each credit hour accepted.
- L. **Special Projects:** All projects must be submitted to the Professional Education Committee for consideration. Projects such as development of or participation in films, radio conferences, television programs or other audiovisual aids that may be used as a teaching aid or for public relations in the field of athletic training will be awarded .5 CEU per project. Preparation and presentation of a scientific athletic training exhibit at the local, district or national level. Limit of .5 CEU per exhibit.
- M. **Correspondence Courses:** Correspondence courses in athletic training or related fields approved by the Professional Education Committee in advance will be awarded .5 CEU for each course. Correspondence courses will be approved by the Professional Education Committee only when the school provides an examination and certifies to the satisfactory completion of the course.
- N. **Other NATA Activities:**
 1. Serving as a national or district officer in the NATA will be awarded one CEU per year.
 2. Committee membership in the NATA at the national level and/or district level will be awarded one CEU per year. An additional .5 CEU each year will be awarded for the chairmanship of a committee.
 3. Certification testing. Those members participating in the certification examinations will be awarded .5 CEU per testing date not to exceed one CEU per year.
 4. Official liaison activity. Those members serving in the capacity of a liaison for the NATA will be awarded .5 CEU each year.
 5. State Organizations. Those members serving as officers or committee chairperson in a formally organized State Athletic Trainers organization shall receive .5 CEU for each full calendar year served in that capacity. This would include those officially designated as working toward state licensure.
- O. **Performance Of Additional Athletic Training Services:** Participation in international events, all-star games, NCAA and AAU Championship events, etc., as an athletic trainer will be awarded .5 CEU per event.
- P. **Tapes And Cassettes Of Proceedings:** Purchase of tapes and cassettes of NATA approved proceedings will earn .1 CEU per unit acquired.
- Q. **Special Considerations:** The Professional Education Committee will give consideration to all educational activities submitted that are not listed above.

PARTIAL LIST OF APPROVED SCIENTIFIC MEETINGS AND PROGRAMS*

1. American College of Sports Medicine Annual Meeting
Contact:
American College of Sports Medicine
1440 Monroe Street, 3008 Stadium
Madison, Wisconsin 53706
(4-day program in April or May)
2. American Osteopathic Academy of Sports Medicine Annual Meeting
Contact:
Keith Peterson, D.O.
5409 17th Street
Seattle, Washington 98107
(2-day program in November)
3. American School and Community Safety Association National Sports Safety Conference
Contact:
Linda Moore, ASCSA
1201 16th Street, NW
Washington, DC 20036
(3-day program last given in October)
This is not held every year.

4. Annual Meeting of the American Orthopaedic Society for Sports Medicine
Contact:
Arthur E. Ellison, M.C.
Program Chairman AOSSM
Berkshire Sports Medicine Institute
Williamstown, Massachusetts 01267
(4-day program in July)
5. National Conference on Medical Aspects of Sports
Contact:
Department of Environmental, Public,
and Occupational Health
American Medical Association
535 N. Dearborn Street
Chicago, Illinois 60611
(1-day program)
6. American Academy of Orthopedic Surgeon's Sports Medicine Courses
Contact:
American Academy of Orthopaedic Surgeons
430 North Michigan Avenue
Chicago, Illinois 60611
7. Sports Medicine Section Meetings of the American Physical Therapy Association
Contact:
Roanld G. Peyton, Chairman
Suite 1633, 100 Colony Square
Atlanta, Georgia 30361
8. Chapter Meetings of the American College of Sports Medicine
Contact:
American College of Sports Medicine
1440 Monroe Street, 3008 Stadium
Madison, Wisconsin 53706
9. AAU Sports Medicine Committee
Contact:
G.R. Greenwell, M.D.
AAU Sports Medicine Committee
407 Beverly Blvd.
Brandon, Florida 33511
10. American Alliance of Health, Physical Education and Recreation Annual Meeting and NASPE/NAGWS Regional Conferences in Athletic Training developed by the NATA
Contact:
Gordon Jeppson
National Association of Sport and Physical Education
1201 Sixteenth Street, N.W.
Washington, DC 20036

* This is partial list. Any program not appearing on this list should be submitted for prior approval to insure that credit will be earned for participation or attendance.

CALENDAR OF EVENTS *Continued from page 8*

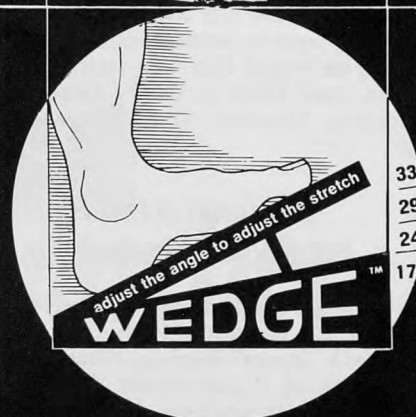
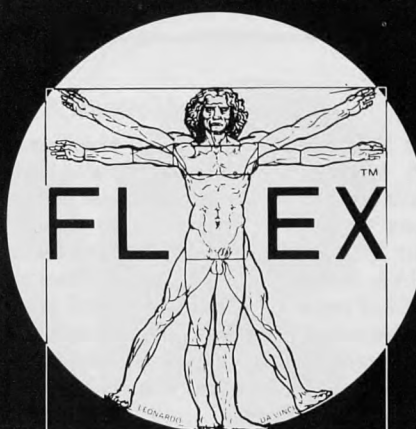
JUNE, 1979

15-17 3rd Annual National Institute of Preventive Sports Medicine, MGM Grand Hotel, Reno, Nevada. Contact Marjorie Cutler, Continuing Education, C & I, University of Nevada, Reno, Nevada 89557.

16-20 The National Athletic Trainers Association Annual Meeting and Clinical Symposium, St. Louis, Missouri. Contact N.A.T.A., P.O. Drawer 1865, Greenville, North Carolina 27834.

25-July 6 Recognition and Management of the Acute Athletic Injury, Springfield College, Springfield, Massachusetts. Contact Charles Redmond, Box 55, Springfield College, Springfield, MA 01109.

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Additionally, if any athletic trainer has any questions regarding sports safety, injuries, rules, or equipment which you would like this committee to place on their agenda, mail them to Gordy Graham, Dept. of Physical Education, Mankato State University, Mankato, Minn. 56001

National Athletic Head and Neck Injury Registry

Effective July 1, 1978, the National Athletic Head and Neck Injury Registry (formerly National Football Head and Neck Injury Registry) has been relocated to the University of Pennsylvania Sports Medicine Center in Philadelphia. In addition, the purpose and function of the Registry has been redefined to include documentation of serious head and neck injuries occurring in all re-

creational and competitive athletic activities. As previously, there will be a joint effort with the National Athletic Trainers Association.

The Registry is soliciting information regarding head and neck injuries sustained as a result of any sporting activity that: requires hospitalization for more than 72 hours, requires surgical intervention, involves a fracture and/or dislocation, or resulted in permanent paralysis or death. Also to be documented are all brachial plexus neuropraxia and axonotmeses. Information requested is the name of the involved individual, his or her school, home address, attending physician, and if known, diagnosis. All information will be held in the highest confidence and only used for epidemiologic survey purposes. Data will be the property of the University of Pennsylvania Sports Medicine Center and in no instance will individuals or schools be identified in subsequent reports.

We believe that the athletic head and neck injury problem is of significant magnitude to warrant the concern of all responsible individuals. Your continued cooperation is requested and will be most appreciated.

All correspondence should be addressed to:

The National Athletic Head and Neck Injury Registry
University of Pennsylvania Sports Medicine Center
3400 Spruce Street
Philadelphia, Pennsylvania 19104

Master's Degree Program

The Temple University College of Health, Physical Education, Recreation and Dance in conjunction with the Temple University School of Medicine and the Temple University Sports Medicine Center is pleased to announce the development of a Master's Degree program in Sports Medicine-Athletic Training. The curriculum will include

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courses in both colleges and it is felt that this is a unique approach and will enable us to develop individuals who will be better prepared to service the educational institutions and athletic departments in our communities.

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Those individuals interested in our program may contact:

Mr. Theodore C. Quedenfeld, A.T.C.
Associate Professor
Temple University Sports Medicine Center
Broad & Tioga Streets
Philadelphia, PA. 19140
(215)-221-2111

1978 Proceedings Still Available

The Proceedings of the 1978 Professional Preparation Conference, which was held at the Opryland Hotel, Nashville, Tennessee, on January 6-8, 1978, is available for \$10.00. Continuing Education Units (0.5CEU) are available for purchasing this manual. Checks should be made to "N.A.T.A. Professional Education Committee" and sent to:

Sayers "Bud" Miller
131 White Building
Pennsylvania State University
University Park, PA 16802
(814) 865-9593

Certification Information

The schedule of upcoming N.A.T.A. Certification Examination sites and dates for 1979-80 is as follows:

August 5, 1979 - Regional

Terre Haute, IN	Ames, IA
West Chester, PA	Nashville, TN
State College, PA	Ann Arbor, MI
Walnut, CA	New Britain, CT
Portland, OR	(all sites subject to change)
Deadline for requesting application - March 15, 1979	
Deadline for returning application - April 30, 1979	

January 20, 1980, - Regional

New York area (E.A.T.A.)	Palo Alto, CA
Valparaiso, IN	Eugene, OR
Fort Worth, TX	Tampa (tentative)
Nashville, TN	(all sites subject to change)
Deadline for requesting application - Oct. 15, 1979	
Deadline for returning application - Dec. 1, 1980	

March 16, 1980 - Regional

District 5 Meeting (site and time to be announced)

Tucson, AZ	West Chester, PA
Raleigh, NC	Ann Arbor, MI
Pullman, WA	
Odessa, TX	

Deadline for requesting applications - Dec. 15, 1979

Deadline for returning applications - Feb. 1, 1980

Contact:

Rod Moore ATC
Athletic Dept.
Valparaiso University
Valparaiso, Indiana 46383

Continued on page 52



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In Memoriam

JOHN DENI



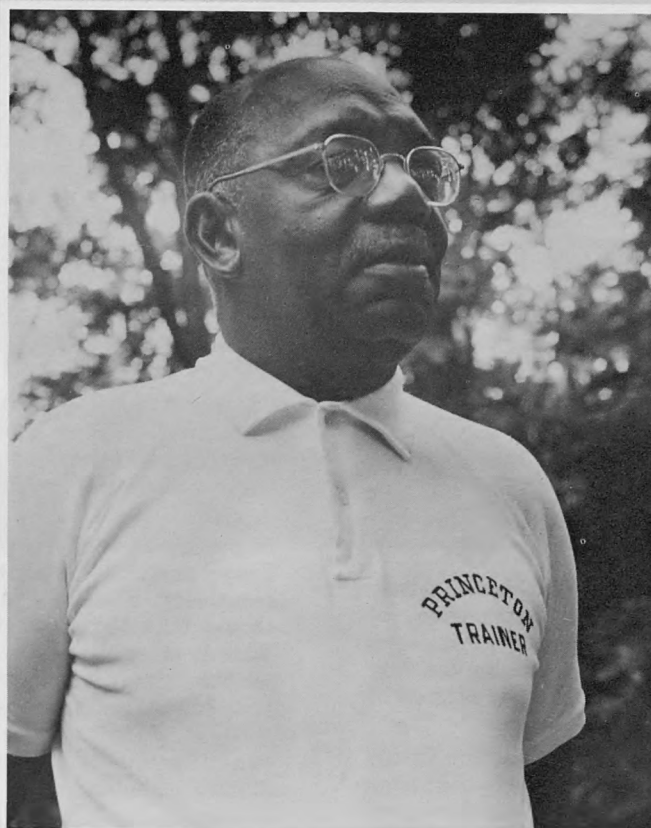
John Deni, May 8, 1903 - February 4, 1978, was one of Pittsburgh's most colorful sports figures. He was winner of hundreds of local, regional, and national awards in his chosen sports of walking, skating, and cycling.

He was a two-time Olympic competitor having participated in the 1948 and 1952 Olympics. His specialty was the 50 kilometer walk. He also won prestigious honors in iceskating and various track events. John Deni is also honored in the Western Pennsylvania Hall of Fame.

John Deni served eight years as athletic trainer for the Kansas City Royals minor league team in Iowa.

In Memoriam

FREDERICK M. "BOBO" HOLMES



Frederick M. "Bobo" Holmes, 71, retired Trainer from Princeton University, died on June 26, 1978.

Born on New Year's Day 1907, "Bobo" started training at Princeton in 1936. Except for work at an aircraft company from 1941-1944, he served as Princeton Trainer until his retirement in 1972. "Bobo" was made an honorary member of the class of 1947 by Princeton Alumni.

A member of the Eastern Athletic Trainers Association and the National Athletic Trainers Association, he received his 25 year award in 1966.

"Bobo" remained active in training at the Hun School, in Princeton, where he continued work until his death. He also had worked many summers at the Pocumtuck Hockey Camp in Massachusetts.

He is survived by his wife, Jeanette, a son, and four grandsons.

Exam Question-Writers Needed

The NATA Board of Certification is seeking questions for the NATA Certification Exam. Questions are needed in the following areas:

1. Mechanics of Injury
 - Evaluation of Specific Injuries
 - Rehabilitation of Specific Injuries
2. Bandaging Techniques (adhesive on wraps)
3. Medical Supervision at Games:
 - a. emergency equipment
 - b. emergency game plan
 - c. emergency communications
4. Psychology and Sports Injuries
5. Coaching Procedures for Injury Prevention
6. Record Keeping

Suggestions for questions should be submitted to:

Carl F. Krein, A.T.A.
Athletic Trainer
Kaiser Hall

GUIDE TO CONTRIBUTORS

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

1. One original and five copies of the manuscript should be forwarded to the editor and each page typewritten on one side of 8½ x 11 inch plain paper, double spaced with one inch margins.
2. The first page of the manuscript should include title of paper, full name of author(s), academic degrees, name of the department and institution of author(s).
The second page should contain a brief biographical sketch of each author, suitable for publication with the article. A recent photograph of each author is also requested, but not mandatory.
The text of the article should begin on page three and is to be followed by the bibliography, tables, and illustrations and legends to illustrations in that order.
3. Photographs should be glossy black and white prints unless color is absolutely necessary to indicate detail. Graphs, charts, and figures should be of good quality and clearly presented on white paper with black ink, in a form which will be legible if reduced for publication. Legends to illustrations should be typed separate from the illustrations on a page following the last illustration. Copies of all illustrations should accompany each of the five copies of the manuscript.
4. It is the understanding of the editor of *Athletic Training* that manuscripts submitted will not have been either previously published or simultaneously submitted to another journal. The author accepts

A Timely Reminder...

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

Brochure Requests

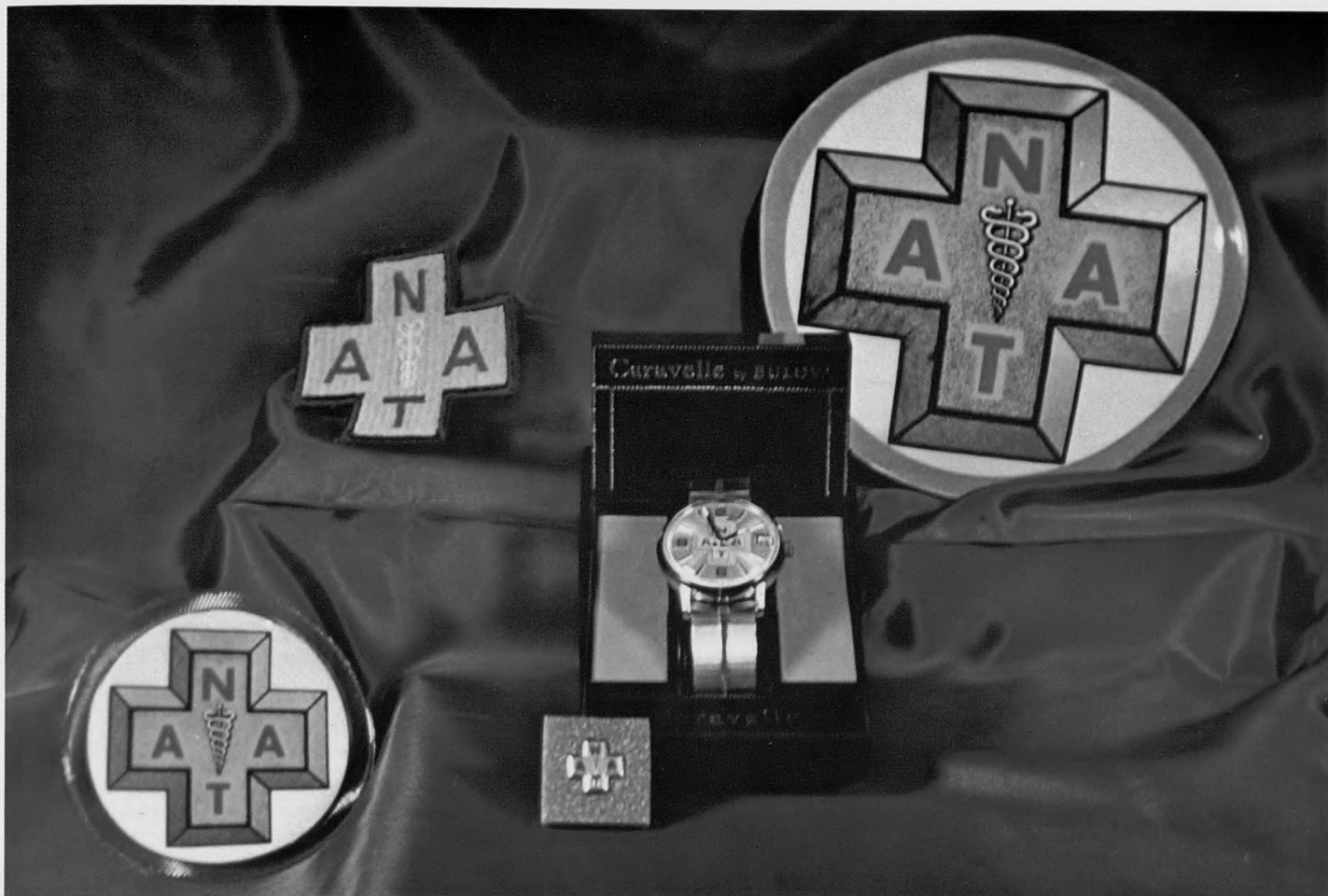
All requests for the brochure entitled "Careers in Athletic Training", previously handled by Mel Blickenstaff, A.T., C. of Indiana State University, should now go to Charles O. Demers, A.T., C. Chairman, NATA Career Information Services, Athletic Department, Deerfield Academy, Deerfield, MA 01342.

responsibility for any major corrections of the manuscript as suggested by the editor.

5. For reprints, authors are authorized to reproduce their material for their own use or reprints can be reproduced at time of initial printing if the desired number of reprints is known.
6. References should be typewritten (double spaced) beginning on the first page following the manuscript. They must be alphabetized and numbered consecutively. Citations in the text of the manuscript should take the form of a number in parenthesis (7) directly after the name of the author being cited, or after the reference if the author's name is not used. The style of the references is that of Index Medicus. Examples of references to a journal, book, chapter in an edited book, and presentation at a meeting are illustrated below:
 1. Knight K: Preparation of manuscripts for publication. *Athletic Training* 11(3):127-129, 1976.
 2. Klafs CE, Arnheim DD: *Modern Principles of Athletic Training*. 4th edition. St. Louis, CV Mosby Co. 1977 p. 61.
 3. 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.
 4. 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 Vega, Nev, June 15, 1978.
7. Potential authors are referred to reference 1 above, for help in preparing their manuscripts.
8. Unused manuscripts will be returned, when accompanied by a stamped, self-addressed envelope.
9. Manuscripts not following the preceeding procedures will be returned to the author.

Address all manuscripts to:

Clint Thompson
Department of Athletics
Michigan State University
East Lansing, Michigan 48824



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