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Minutes of the NATA Board of Directors Meeting
Chondromalacia Patellae: Overuse Enemy of Distance Runners
Examining Knees for the Presence of Rotary Instability
Ultrasound

Volume 10
Number 3
September 1975
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Dear Member NATA,

It was good to meet and talk with so many of you at the annual meeting in Anaheim. We would like to thank all the members of the Convention Committee for the time and effort that was spent to make this convention a tremendous success.

The annual business gave me a chance to speak with the members of the association and to discuss many of the current issues which are facing the NATA and the profession of athletic training. The minutes of the business meeting and the Board of Directors meetings are published in this Journal, so you will have the opportunity to read my comments and to study the decisions of the Board of Directors.

Some of the comments I would like to call to your attention concern the membership and their willingness to become really involved with the association. Some of these comments have been in previous letters to the association. The Board of Directors must make a number of important decisions. The more opinions we have on any issue, the more democratic the decisions of the board will be. I hope every member of this association will feel they have something to contribute.

Because of administrative problems, the continuing education program has not developed as we hoped it would. The Board has postponed the beginning of this program until January 1977. The membership of NATA was asked to fill out a questionnaire concerning continuing education. Of those responding, 76% voiced approval of a continuing education program.

In the June issue of ATHLETIC TRAINING there were comments on athletic trainers suturing, aspirating, and injecting. At the meeting in Anaheim a lawyer, James Hayes, spoke on the increasing legal implication of sports medicine, with emphasis on athletic training. Please be very aware of what your duties as an athletic trainer are, and what they should be. Other subjects I have commented on were: Federal legislation, the NATA High School Faculty Athletic Training Programs, the need for the NATA to have a full-time Executive Director, and Convention sites.

The Board of Directors would like to have as much input from the association as possible regarding convention sites. Discussion has been aimed at the idea of choosing a central location site, or continuing with rotating sites . . . from east to central, to west to central, which would give us two central locations every four years.

Sincerely,

Frank George
President, NATA
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In athletics the techniques of coaching have changed. More time is being spent on the fine points of the game. This places a great responsibility upon the athlete to maintain superior physical fitness throughout the year. For the nonathlete, it is a matter of self pride to be in good physical condition.

Many elements must be considered in a football conditioning program. Strength, endurance, flexibility, speed, agility, climatic conditions and individual rehabilitation are important factors in a beneficial program.

Strength to the athlete is one of the most valuable assets he can possess. Strength may be defined as the capacity of the body to exert force on some external resistance. Excluding physical defects and some pathological conditions, strength is accessible to all; muscles can be strengthened. The importance of strength to athletics is not new; strength has long been a valuable asset to the success of many coaches.

Weight lifting is a sport in which actual competition occurs between individuals and teams by lifting a maximum amount of weight only one time. Weight training is the use of light weights to increase the resistance of the number of bodily movements or selected muscle groups for the improvement of physical condition, strength, power, health, or one’s performance in a particular sport.

The simple weight program that follows has proven to be successful in as short a period of time as three months. The concentration of this off-season program is on specific body areas to be developed, but no part of the body can be neglected. Most authorities recommend that lifting be done every other day to permit adequate recovery time between lifting sessions.

But, it should be understood that the controlling factor in weight training is the overload principle. This principle states that in order that muscular strength develop, the tension exerted by the muscles must be greater than the tension which is usually exerted by these same muscles. In essence all of the tiny muscle fibers which compose a muscle of the body must be utilized to bring about an increase in strength.

The following weight-training program is based on three (3) sets of ten (10) repetitions each, maximum plan. This simply means that there be a progression of weight for each set of repetitions and that the final set (3rd) be using the maximum amount of weight one can lift ten times. This amount does not necessarily indicate an absolute maximum amount, but the lifter should have to give good effort on the last repetition.

After working with the weight two or three times one will be able to determine the weight load for the performance of each lift ten times. When the lifter is able to perform more than ten repetitions at the maximum amount it is time to increase all weights by five to ten pounds.

What follows are the six exercises (lifts) that are, I feel vital for an offseason weight-training program, followed by an easily made individual/weekly work-out chart.

---

Mr. Morris received his A.B. degree at Duke University and his M.S. degree at Indiana State University where he is presently working on his Doctoral Degree.

---

Bench Press: The author spots while Chuck Drewry develops the muscles of his chest, shoulders, and the back of his upper arms.

Bent-Over Rowing Pull to Chest: Develops back, back of shoulders, and front of upper arms.
Half-Squat: Develops the thighs and hips.

Two Arm Curl: Develops the front of the upper arms and the front of the forearms.

Upright Rowing: Develops allied upper back muscles and arms.

**WEEKLY WEIGHT TRAINING CHART**

<table>
<thead>
<tr>
<th>Exercise (Lift)</th>
<th>Date / /</th>
<th>Set</th>
<th>Date / /</th>
<th>Set</th>
<th>Date / /</th>
<th>Set</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bench Press</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>2. Bent-over Rowing</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>3. Half-Squat</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>4. 2-Arm Curl</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>5. Upright Row</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>6. Overhead Press</td>
<td>I</td>
<td>II</td>
<td>III</td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
</tbody>
</table>

The Individual/Weekly Weight Training Chart, is designed to allow the individual ample recovery time between lifting sessions, flexibility of routine schedule, and consistent recognition of personal progress. In each set box both the number of repetitions and the weight attempted should be listed. For example:

2-Arm Curl

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>75</td>
<td>85</td>
<td>95</td>
</tr>
</tbody>
</table>

**WANTED:**

**Ideas For 1977 Convention**

The student-trainer staff of Ohio University is starting to plan a program for the junior, senior high school and college-age student trainers attending this Convention. Our goal is to set up a program that will complement the regular convention theme, "Back to the Basics." We are interested in your ideas-----what you would like to see take place at the 1977 Convention, in Dearborn, Michigan.

Please send any suggestions you might have, along with your name if you are willing to help in any way, to the following address:

Student Trainer Staff
Dept. of Intercollegiate Athletics
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ATHLETIC TRAINING - Volume 10 - Number 3 - September 1975
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Summary.
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As you might expect, it costs more than other football helmets. We think you'll agree it's worth every penny of it.

use hours throughout the country this helmet proved itself to be a football players' helmet.

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The field testing taught us that while coaches want a safe helmet, players want one that "plays" well, and feels good.
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The Bike® Air Power Helmet. From Kendall.
A distance runner, by necessity, puts a great deal of stress on his body during training. An overabundance of stress may often result in any variety of overuse injuries.

In distance running, as in many other sports, the injured knee often causes the greatest amount of pain, poor performance, and lost practice time. The so-called “runners’ knee” can denote any number of conditions - tendinitis, synovitis, bursitis, arthritis ligament or cartilage damage, and last but not least, chondromalacia patellae.

Chondromalacia patellae is among the most obscure, least readily detectable, and most common of these conditions in distance runners. A study of injuries to runners by Brubaker and James (2) revealed that knee injuries accounted for 41% of all injuries to a group of middle and long distance runners they surveyed. Of the knee injuries in that group, 20% were diagnosed as chondromalacia patellae.

A knee injury can spell misery for the distance runner. Chondromalacia patellae can spell doom. It is important for the trainer to be able to deal with the condition effectively in order to help keep his distance runners on the move. To do so, the trainer should have a good idea of the exact nature of the condition, its major causes, techniques of recognition, and effective methods of treatment.

The Condition

The fact that chondromalacia is not readily detectable is seen in the many variations given the definition of the term. Devas and Golski offer a definition that supports the obscurity of the condition: “Chondromalacia of the patellae is a common and disabling condition of uncertain etiology and unpredictable natural history (4).”

The British Medical Journal becomes more specific, saying, “The term chondromalacia patellae is used to denote a condition affecting fit persons in which pain arises from the posterior aspect of the patellae (6).”

Bentley describes the condition as
"softening of the articular cartilage of the patellae with fibrillation, fissuring, and erosion of the articular cartilage (1)."

Dr. George Sheehan, a distance runner himself, has studied the condition in distance runners and offers a definition slightly different from the others presented. While he defines the pathology much the same as Bentley, Sheehan believes that "... the one plane symmetry of the patella riding the groove between the (femoral) condyles is altered to cause chondromalacia patellae. This deviation is transmitted by structural abnormalities in the intricate architecture of the foot (7)."

For the sake of simplicity, the trainer may refer to chondromalacia patellae as a condition in which the posterior aspect of an abnormally positioned patella becomes damaged.

Causes of Chondromalacia Patellae

The causes of chondromalacia are quite varied, as might be imagined, by the variety of definitions given the term. There are, however, four primary causes: direct trauma; weak quadriceps; overuse; foot structural abnormalities.

Direct Trauma

Earliest accounts of the condition, given around 1906, point to direct trauma as the major cause, and today that theory is supported in a large number of non-athletic cases. The trauma may cause fracturing of the patella or femoral condyles, or may allow for the development of calcium deposits in the area. Chondromalacia could develop secondarily to either of these conditions.

Weak Quadriceps

Weak quadriceps muscles are sometimes offered as a cause for chondromalacia. A weakened condition may allow the patella more freedom of lateral motion, especially when combined with the strain of distance running. Since the distance runners quadriceps are trained for endurance activities, rather than activities requiring great thigh strength, a weakened condition may combine with one of the following causes to disable the runner.

Foot Abnormalities

Sheehan (8) theorizes that foot abnormalities add to the stress placed upon the knee, causing displacement of the patella and increased friction between the patella and the femoral condyles. One such abnormality is prevalent in causing running-related injuries. According to Sheehan, "The most frequent cause of structural instability in the foot is Morton's Foot (congenitally shorter first toe). It is a biomechanical absurdity ... the foot adapts by either bearing most of the weight on the head of the second metatarsal, thereby causing a stress fracture, or by pronating the foot (rolling over to the inside) and opening a Pandora's Box of overuse injuries ... It is possible that when these conditions occur, no one observes whether the second toe is longer than the first (8)."

Pronating the foot may also cause the quadriceps to pull the patella to a position that is more directly over the lateral femoral condyle than is normal.
Overuse

A distance runner puts varying degrees of strain on the quadriceps tendon and the patellar region over long periods of time. The effects of this strain day after day may cause a "...disturbance of rhythm of the patellar function (5)." Differences in running speed, length of stride, direction of stride, and variations in the running surface may all cause the patella to be displaced slightly and abruptly. This displacement, combined with the repetitive action of running, could cause some wearing of the patellar articular cartilage.

Distance runners are subject to overuse problems almost constantly. Constant repetition of the knee action in running, when combined with slight patellar displacement will cause patellar malacia to develop. If the displacement is caused or worsened by structural abnormalities of the foot, the condition is likely to be more severe, and more difficult to treat.

Diagnosing Chondromalacia

The diagnosis of chondromalacia patellae is almost as varied as the cause of the condition. Most often, a runner complains of pain on or under the patella. Symptoms that most often appear are retropatellar aching, especially after long periods of sitting or vigorous exercise, or pain on deep knee flexion and active extension, as these actions most affect patellar placement.

Diagnosis by Cause

O'Donoghue (5) classifies chondromalacia patellae into three groups on the basis of cause.  
Group One - Malacia due to acute trauma or repeated lesser trauma. The findings of pain on pressure, extension, and flexion are localized around the patella. A distance runner would have a Group One diagnosis only if he were to fall or otherwise contuse the knee.

Group Two - Intrinsic injury to the knee, with accompanying disturbance of the rhythm of knee action. Malacia is coincidental to the original injury. The patellar symptoms may be masked by the original condition so that diagnosis is not performed until much later, after the original condition has cleared up. Patellar pain that develops as a result of injuries such as hyperextension, tendonitis, or bursitis would be diagnosed as Group Two malacia.

Group Three - Increasing discomfort and disability centering on the patella without previous history of trauma or injury. The joint is asymptomatic except for the patella. Gross subpatellar crepitation is usually the first symptom. Any action which forces the patella against the patellar groove is painful and increases the crepitation. A Group Three diagnosis is most often due distance runners, as overuse and structural abnormalities will cause the patellar discomfort.

Diagnosis by Severity

Bentley (1) describes four grades of chondromalacia patellae according to the severity of the condition. A realistic approach to treatment will develop out of an understanding of which of these grades manifests itself most often in distance runners. The grades are:

I. Localized softening,
swelling, or fibrillation of the articular cartilage.

II- Fragmentation and fissuring in an area of 1.3 centimeters or less in diameter on the underside of the patella.

III- Fragmentation and fissuring in an area of more than 1.3 centimeters in diameter.

IV- Erosion of the articular cartridge down to the subchondral bone.

Chondromalacia can appear in any combination of the O'Donoghue groups and the Bentley grades, thereby producing a large difference in individual cases.

A distance runner who develops chondromalacia as a result of overuse and structural abnormalities can usually be considered as having Group Three, Grade One condition. The knee is asymptomatic except for the patella (Group Three), and is pathologically in the early stages of degeneration (Stage One).

Techniques of Recognition

Preliminary recognition of patellar malacia can be performed by the trainer on the basis of simple flexion, extension, and pressure tests.

Flexion testing involves either weight-bearing flexion (figure 1), such as a full or half squat, or passive flexion, such as lying prone and flexing the heel to the buttock (figure 2). In either test, pain may be present at any degree of flexion, as the patella is being forced harder into the patellar groove with increased flexion.

Extension testing can be done with the athlete sitting on the training table with the leg flexed (figure 3). The trainer steadies the thigh with one hand while supplying a resistance to the active extension of the leg with the other hand. This test is also to be performed in varying degrees of extension, once again to note the relative position of the patella in respect to the patellar groove.

Pressure testing (figures 4 & 5) involves simply fixing the leg in a passive patellar position, and applying pressure to the patella, forcing it against the femoral condyles.

Mild pain resulting from any of the mentioned tests may be an indication of a slight case of chondromalacia. Severe pain should be checked further.

A case that appears to be more than mild should be attended to by a physician. The use of x-ray, arthography, and arthroscopy will assure a very complete diagnosis (figures 5, 6, 7, & 8).
FIGURE 6 - A medial view of the normal knee, with the patella normal in terms of position and condition.

FIGURE 7 - Anteromedial view. Upper right and upper middle borders of the patella are somewhat undefinable, indicating some fissuring or fragmentation of the patella.

FIGURE 8 - Same knee as Figure 7, viewed laterally. Shows degeneration of the posterior aspects of the patella, as well as degeneration of the lateral femoral condyle.

Treatment of Chondromalacia

Treatmeat of Grade One, developing chondromalacia patellae is accomplished most often by a variety of conservative measures. Brubaker and James (2) report that rest, immobilization, analgesics, and physical therapy have been used in treatment. The physical therapy referred to here was whirlpool treatments, moist heat pack application, cold applications, and therapeutic exercise.

Because of the uniqueness of each individual condition, treatment is often specific and problematical. Darracott and Vernon-Roberts (3) report promising results using graduated quadriceps exercises and corticosteroids. Another possible approach is to have the athlete avoid all strenuous exercise, especially running, begin static quadriceps exercises with slight knee flexion to avoid patellar movement, and to precede the exercises with short-wave diathermy (6).

Vastus Medialis Support

Specific development of the vastus medialis muscle has also been mentioned as a useful rehabilitative technique (10). Because of its insertion on the medial aspect of the common quadriceps tendon and the upper medial border of the patella, the vastus medialis will add support to the medial capsular ligament of the knee. The patella will be held correctly in the condylar groove, thereby reducing the rubbing between the patella and the lateral femoral condyle.

Inverting the foot during static or dynamic quadriceps exercises will have the effect of internally rotating the tibia, and isolating on the vastus medialis, thereby increasing the training effect for that muscle (figure 9).

Surgical Techniques

The most common treatment of Grades Two, Three, and Four is surgery; chondral shaving, patellectomy, or transportation of the tibial tubercle as developed by Devas and Golski (5). With all surgical techniques, straight leg raises may be begun immediately following the operation. With the transposition technique, flexion exercises and weight bearing may be started within a week. The patellectomy & chondral shaving require a period of no exercise due to casting. Quadriceps weakness, knee instability and disabling restriction of flexion are sometimes the result of patellectomy, but rarely develop from chondral shaving or transposition.

If a distance runner were to develop patellar malacia to the point where surgery is advisable, return to normal training will be a long time in coming. Time off due to surgery should not be a consideration, as the condition undoubtedly limited practice time severely beforehand. After surgery, the runner will have to allow plenty of time to retrain at a rate carefully planned in conjunction with the trainer in order not to aggravate the injury, or create a new disabling condition.

Orthotic Foot Control

Dr. Sheehan theorizes a much different treatment of chondromalacia patellae: “The way to treat chondromalacia patellae is to treat the foot... my patients (distance runners subscribing to Runners World Magazine) have not had promising results from quadriceps exercise and corticosteroid injections, nor from any other remedies listed in the literature. They have, however, had very gratifying results from podiatric treatment (custom-molded orthotics) of the biomechanical difficulties of the foot that supports and stresses the damaged knee (7).” Sheehan found that 35% of the runners had Morton’s Foot, and that others had forefoot varus or narrow subtalar range.

Dr. Steven I. Subotnick (9) believes that orthotics can be of great help to the distance runner with structural or gait abnormalities. Subotnick, a podiatrist, supplies his distance running patients with two pairs of orthotic supports (figure 10).

One pair is a rigid, custom-made, functional appliance, made from a positive cast of the foot while held in a neutral position. This pair is worn in both street shoes and training shoes, and appears to function well for runners for distances from a few miles to the marathon.

The second pair is a soft, flexible appliance. This pair does not provide as precise, functional control as the rigid supports, and are thus utilized for competition only.

Subotnick reports that the rigid supports are very successful in
relieving the symptoms of chondromalacia, and that almost all of his patients have been able to continue running with gradual to complete disappearance of the related causative factors.

Conclusion

Chondromalacia patellae can develop very rapidly from a mild to a more serious condition, but because of the nature of training used by distance runners, the pain and motion limitations will usually be severe enough to impede training and force the athlete to seek help. The distance runner who complains of pain in the knee needs to be given individual attention.

The major cause of chondromalacia in the distance runner appears to be overuse - constant wear and tear on the patella. Any runner who develops the condition should also be checked for structural abnormalities of the foot, as these will greatly aid the degenerative capabilities of overuse.

The best treatment of chondromalacia will depend on the severity of each individual case. If the condition is caught in its early stages, rest, heat and cold applications, and conservative rehabilitation exercises will be the best course of action. Should the runner not respond to conservative treatments, the trainer and athlete should consult the team physician for referral to a podiatrist.

Orthotic treatment, in the form of foot supports, will relieve the symptoms, and combat the causes of chondromalacia patellae, and at the same time allow the distance runner to get back on the road again.

A quick, individualized approach to the injury by the trainer will help turn chondromalacia into a temporary condition, rather than one of permanence.

BIBLIOGRAPHY


Due to the lack of knowledge regarding what ultrasound is, how it is produced, the different techniques of application available, and the physiological changes that occur in the body tissues, many ultrasound units are tucked away and never used or are improperly used. Ultrasound is not a panacea, but if used correctly by the athletic trainer with full awareness of the dangers, and on a physician's prescription, it can be a very effective form of treatment.

What Is Ultrasound

Ultrasound consists of acoustic vibrations or sound waves which are inaudible to the human ear because they occur at a much faster rate than the ear can perceive. The upper limits of audible sound are 16,000 - 20,000 cycles per second. Sound wave frequencies occurring above 20,000 cycles per second are called "ultrasound." Therapeutic treatment units operate at a frequency of from 800,000 to one million cycles per second.

Production of Ultrasound

The high frequency sound waves are produced by applying an alternating current to the surface of a suitable crystal such as quartz or a ceramic crystal such as lead-zirconate-titanate. The electric current changes the shape and size of the crystal and causes it to vibrate. This oscillation of the crystal produces the ultrasound waves and sends them to the face of the transducer. With a coupling medium (described later) between skin and transducer, the high frequency sound waves are transmitted into body tissues.

Principle Effects of Ultrasound

Absorption of ultrasound energy causes heat in the tissues. Because of reflection of ultrasound at interfaces of dissimilar tissues, a structural heating results; i.e., longitudinal ultrasound waves are reflected and changed into transverse waves. Ultrasound also heats selectively because some tissues absorb more waves than do others. Micromassage, an actual to and fro movement of tissue particles, is caused by compression and rarefactions of tissues as the sound waves penetrate the body.

As a result of these effects, there is relief of muscle spasm, analgesia, sedation, and increased vasodilation and thus an increase in circulation to the part being treated. The increased volume of blood brings more nutrients into the area and hastens removal of waste products. Membrane permeability is increased and this results in an elevation of fluid absorption.

Continuous or Pulsed Ultrasound

When continuous ultrasound is used, the unit generates an ultrasonic beam that is emitted without interruption until the unit is turned off so there is a continual heat generating process in the tissues. The pulsed or interrupted beam lessens the heating effects because the heat dissipates during the time interval between the pulses. Thus, there is relatively little heat in the tissues, but the micromassage effect remains.

Contraindications for Ultrasound

Before ultrasound is used, all contraindications must be recognized. Ultrasound is absolutely contraindicated in the following conditions and areas: acute inflammation and trauma; on the spine after laminectomy; acute infections; hemorrhagic areas; genitals; eyes; malignant or non-malignant tumors; brain; heart or region of the heart; areas that have had deep x-rays, radium or radioisotopes until at least six months have elapsed; any part of any person who has a pacemaker; areas of vascular insufficiency; epiphysis of growing bones; the pregnant uterus. Great caution should be used in areas of skin anesthesia or decreased sensation and over bony prominences.

Reflection and Refraction of Ultrasound

Air is a powerful reflector of ultrasound, (approximately) ninety-nine percent of ultrasound is reflected by air, so all air must be removed from the skin. This is done by coupling the transducer to the skin with a material that has similar density and sound velocity as the skin. The choice of which coupling medium to use depends on what part of the body is to be treated and the transducer technique to be used. Water and commercial gels are the best.

Reflection also occurs at the transducer-air interface. The transducer should never be held in the air with the intensity up from zero for more than a few seconds. It can overheat and burn the patient, ceramic crystals can be damaged and the cement adhering the crystal to the inside of the metal housing can be softened.

A third area of reflection of ultrasound is the interface between the periosteum and bone allowing heat to build up. If there is not enough coupling medium between the skin and transducer, if the transducer is being moved too slowly or if the intensity is too high, periosteal pain and/or a burning sensation may result in the area being treated.

When using any coupling medium except water, total reflection of ultrasound will occur between the coupling medium and the skin if the transducer is held at more than fifteen degrees from a right angle to the skin.

Contact Technique

The contact technique is used on relatively smooth surfaces and where light pressure of the transducer will not cause pain. In this method, the transducer is held in firm (but not heavy) contact with the skin and at a right angle to the part throughout the entire treatment.

When using continuous ultrasound and a 7 to 13 cm² or smaller transducer, the transducer should be kept moving in either small circular movements or small longitudinal strokes at approximately one inch per second. The next stroke should cover fifty percent of the previous stroke. The transducer may be stationary when it is 50 cm² in size or when pulsed ultrasound is used.

The best coupling medium to use with the moving transducer is a gel as this remains on the skin better than does a lotion or oil. The stationary transducer demands a gel.

The underwater technique is used when the surface is uneven such as hands, wrists, feet and ankles or when transducer pressure cannot be tolerated. In this method the water is
the coupling medium, and the water temperature should be no more than 80°F.

A whirlpool (with the turbine off) or a container large enough to completely immerse the part and transducer may be used. In this technique, the transducer should never touch the skin but should be held approximately one-half inch from the skin. Air bubbles that appear on the skin or transducer should be removed.

Either the moving or stationary transducer may be used, but the stationary transducer technique is difficult. When using either method, the choice of continuous or pulsed ultrasound depends on the size of the transducer.

### Duration and Intensity

The duration of the treatment will vary according to the area of the part being treated and the intensity being used. If the surface is large, it should be divided into areas approximately 4 x 4 inches if using a 7 to 13 cm² moving transducer, and each area should be treated for five minutes. With a 50 cm² transducer, each part may be 8 x 8 inches. With the stationary transducer, the area will be the same size as the transducer.

The therapeutic intensity range will usually be from .5 to 3 watts/cm². In most cases 1 watt/cm² is sufficient. Some manufacturers use total watts. Be sure to read the correct meter scale.

### Dangers

The dangers of using ultrasound are few if the trainer has a prescription for treatment from a physician, is aware of the contraindications and not only knows how to do the techniques, but also knows why certain procedures must be followed.

Periosteal pain due to reasons previously stated and a burning sensation are probably the most common patient complaints. If these symptoms cannot be relieved by adding more coupling medium and/or reducing intensity, then treatment should be terminated immediately. Never cause pain when treating with ultrasound.

### Summary

Ultrasound is a very effective modality for the treatment of athletic injuries. Although the unit is very simple to use, it should never be used for self-administered treatment by the athlete. It should be used only by a qualified person who is well-versed in its operation and limitations.

### BIBLIOGRAPHY


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**Prevent Knee Injury!**

**Wear the ARCO KNEE GUARD!**

Guard those knees before surgery. Prevent injury with the ARCO KNEE GUARD. No player should risk knee injury any longer!

The ARCO KNEE GUARD is the only knee injury preventive on the market. Latest material developed by research allows a revolutionary new design to be used. Wear the ARCO KNEE GUARD at all times like any other protective pad — to prevent knee injuries.

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Speed, agility, and free movement are not affected. The wearers report the greatest protection possible with NO loss of quickness. No injuries inflicted in four years with the ARCO KNEE GUARD. The guard prevents medial and lateral separation as well as rotation of the knee. The ARCO KNEE GUARD tapes on easily and is padded to meet game regulations.

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The knee is the largest, most complex, and most vulnerable joint in the body. Its stability and function is totally dependent on the quadriceps complex which with its origin, sesamoid, and complex insertion comprises the extensor mechanism of the knee. Above it arises with the rectus femoris origin from the pelvis just above the hip joint and is joined below by the two vasti muscles and finally deep from the front and vastus intermedius muscle. These latter three completely ensheathe and take origin from the femur and thus are intimately associated with it. Its insertion is complex first into the patella through the central tendon as well as through the complex retinaculum on each side. It finally inserts through the patellar tendon directly into the tibia by way of the tibial tubercle.

Most discussions of injuries of the extensor mechanism stress the complex aspects of fracture of the patella. In this brief paper emphasis instead will be made on the musculotendinous injuries omitting the problems of patellar fracture.

**Pelvis Avulsions**

Most avulsions of the pelvis origin are problems of the adolescent since the muscles by and large are stronger than the rapidly growing apophyses and epiphyses from which they may take origin. Pull-off fractures can occur about the iliac crest and often result in large displaced fragments. The commonest flexor injury is pull-off of the anterior end of the iliac apophysis and this often occurs as a combination pull-off of the tensor and sartorius and at times a portion of the rectus as well. Such injuries can be quite serious, very painful, and result in a marked disability. When a fragment is large and the muscle mass obviously displaced surgical replacement may be of benefit, but in the less severe case as a rule they can be safely ignored. When the mass is very large, however, it will heal with a noticeable bony prominence. (Figure 1).

At times when the history is vague such bony avulsions can be misinterpreted and confused with myositis ossifications or even neoplasms. If bony biopsy is done masses of rapidly growing bone will be seen on microscopic section, which can be confused with the microscopic picture of primary tumors.

In at least one such instance we have seen x-ray therapy administered following such an erroneous microscopic diagnosis.

Rupture of the quadriceps muscle itself can occur in the adolescent or in
FIGURE 1 - Flexion avulsion fracture in a 12-year old boy. This was so large that surgical replacement was performed and as a result this is a minimal bony deformity and he has excellent function. Smaller pull-off avulsions can often be safely ignored.

FIGURE 2 - Pull-off fracture in a 16-year old high school athlete who was doing resistant squatting exercises to strengthen his quadriceps after a period of 6 weeks immobilization in a cast.

the mature athlete. This is usually a problem involving the rectus femoris which can either pull-off its pelvic origin or else rupture near its musculotendinous insertion. Where there is a major avulsion of the rectus this can result in a significant weakness and at times a painful disability. At times this can be particularly true in kickers who can pull off a portion of the rectus muscle if cleats are hung in the process of place kicking a football. At times significant tears of the rectus femoris can occur in mature football players in which the body of the muscle itself is pulled free from the upper end. The diagnosis is made by the finding of painful swelling, accompanied by a palpable defect usually in the upper anterior thigh. Minor tears in the body of the muscle can be safely ignored and rarely cause any functional impairment but complete ruptures of the rectus or the rectus origin in the active athlete deserve surgical repair. If the injury is an old one, one usually finds the contracted muscle pulled downward lying like a bulky sausage and bathed in a bursal-like fluid. Surgical treatment is to stretch it out and reattach it as close as possible to its original origin with additional attachment to the two vasti muscles.

Quadriceps Rupture

The commonest area for rupture of the quadriceps is at its point of insertion into the upper pole of the patella. This is probably more common in the older non-athlete than it is in the active athlete but it can occur both as a result of sudden muscular contraction or any violent fall or rarely during weight conditioning exercises in a muscle that has been rendered weak from inactivity or immobilization. (Figure 2). The diagnosis is usually easily made by the finding of a depression above the patella which is easily palpated and complete inability to extend the knee. The treatment is early surgical repair followed by a period of total immobilization and a longer period of partial protection. Associated with rupture of the quadriceps muscle one often finds lateral tears of the knee retinaculum and all of these must be meticulously repaired at the time. The results following protection and rehabilitation should be excellent.

Myositis Ossificans

Myositis ossificans can be found in several locations in the body where a muscle is intimately associated with a bone. The three areas in which it is most commonly seen is the front and back of the arm and the anterior thigh. By far the commonest location is in the thigh, particularly in the vastus intermedius muscle. This injury, long known as a “charley horse”, is really myositis ossificans forming as the result of a severe muscle contusion. The one essential ingredient appears to be hemorrhage of the muscle under pressure, directly connected to the periostium of the bone. Clinically, it is characterized by rapid, severe, painful swelling usually associated with significant induration over a large area of the front of the thigh. Early on the only findings will be a tightly swollen painful thigh and x-ray at this stage is usually negative. Typically muscle function progressively decreases, induration
increases, and in 2-4 weeks the x-ray changes of first calcium deposition and finally true bone formation in the muscle become more evident. This goes through a picture of further maturing and finally as the mass becomes more discrete it shrinks and muscle function returns. As a rule this requires 2-4 months. The initial treatment is pressure and the application of cold but the definitive treatment is to apply pressure and to encourage but not force gentle persistent efforts at restoring muscle function. Vigorous massage or muscle stretching commonly causes exacerbation of the symptoms. Aspiration in most hands is unrewarding. The return of good function with time is the rule though in certain instances when a massive amount of bone is obtained late surgical excision may be indicated. (Figure 3).

**Patellar Dislocation/Subluxation**

Patellar dislocation and subluxation though seen occasionally in the male athlete are more common in the female. Etiologically this is thought to be due to the tendency of the patella to slip laterally with muscle contraction when genu valgum is present, a condition much more common in girls than in boys. Despite this, however, after direct trauma or severe knee sprains dislocation or subluxation of the patella can occur in the best conditioned athlete. Dislocation is characterized by lateral displacement of the patella when the knee is bent. By the time most trainers or physicians see the injured athlete someone has straightened the knee, which usually results in relocation of the patella. In such instances the findings are usually that of a markedly swollen blood-filled knee, moderately severe pain, and local tenderness over the upper medial aspect of the patella at the point of insertion of the vastus medialis fibers into the patella. These fibers are almost always torn or badly stretched with lateral patellar displacement. As a rule x-rays are negative except for swelling but at times the dislocation will result in small articular fragments being broken off from the patella or the lateral femoral condyle and these may be visible within the joint. The treatment as a rule following the initial patellar dislocation is conservative with immobilization to allow time for the quadriceps to heal and gradual rehabilitation followed by quadriceps exercises. Resubluxation or redislocation is seen with enough frequency that some have recommended quadriceps retinaculum repair on all initial dislocations but this is rarely practiced since dislocations may never again recur.

Patellar subluxations are a problem fairly common in women and perhaps the greatest cause for knee "giving way" in the female athlete. Many medial menisci have been removed as the result of mis-diagnosis of a patellar subluxation. Clinically the complaints are of a weak knee with subpatellar pain.

**FIGURE 3** - The development of myositis ossifications in an adolescent. (Left to Right)

A. The femur after 1 week. Total knee motion is 40 degrees.
B. Early ossification 4 weeks after injury. Total knee motion is 30 degrees.
C. 10 weeks after injury. The myositis outlines are now more discrete, more dense, and somewhat smaller. Total range of knee motion is 90 degrees.

**FIGURE 4** - Pre-operative and post-operative patellar location following Hauser procedure. The patella is moved medially and very slightly distally. Resulting function is excellent.
FIGURE 5 - The left knee has had a Hauser procedure with too far distal transfer of the patellar tendon. The result is that the patella is close to the tibia and knee function is impaired and painful. This is a common error in performing this operation.

FIGURE 6 - Right patella shows a small spur at the inferior tip. The arrow indicates a small cystic lesion which proved to be an area of local granulation at the time of surgery.

aggravated by grinding the patella against the femoral condyles reproducing the pain. Most persons subject to patellar subluxation will profess acute apprehension if the examiner presses the patella laterally in the extended knee. This one test is probably the most significant diagnostic feature. Other features, however, may be high-riding patellae with elongated patellar tendons, loose or valgus knees, or the finding of hypoplasia of the lateral femoral condyle.

The treatment in the recurrent dislocater or subluxater is surgical repair with realignment of the quadriceps mechanism. Some surgeons advocate doing this by reeving or shortening the medial capsule and distally advancing the vastus medialis to pull the patella more medially. Others have advocated merely releasing the lateral retinaculum when mild subluxation is the problem. Probably still the best single procedure, when properly done, is the Hauser procedure transferring the patellar tendon insertion medially by either moving a block of bone or a chip of bone including the patellar tendon, stapling it in a more medial position. This operation has been roundly criticized in many areas but the basis for such criticism is usually poor performance of the operation with over-ambitious distal transplantation of the patellar tendon. Properly done it is still an excellent operation to stabilize the patella against lateral dislocation. (Figure 4 and 5).

The author prefers the more classic procedure in which the bone block is transferred to a new location and countersunk in such a fashion that it cannot be pulled free. No internal fixation is used and the only additional soft tissue work consists of release of the lateral retinaculum. The medial muscle insertion is not disturbed. With this technique it is possible to use only a soft knee splint for a few days and then begin early active motion without the use of a plaster cast.

Accessory Patella

Accessory patella is a common abnormality that is usually productive of no symptoms at all. It consists of a separate ossification center with the upper outer pole of the patella which is connected with the main body of the patella by a firm fibrous union and as such functions quite well. At times, however, following trauma this accessory patellar fragment can become painful. If it persists the disability can be severe enough to require excision of this fragment. This is rarely necessary. The chief problem is that it is commonly confused with fractures of the patella and treated with prolonged immobilization or surgery. Clinically it is usually bilateral and not associated with any symptoms unless severe traumatized.

Jumper's Knee

Jumper's knee is the name that has been applied to tendonitis of the patellar tendon at its origin from the inferior pole of the patella. This is a painful disability that is most commonly seen in basketball players and track athletes whose activities require repetitive jumping. It is characterized by a small area of point tenderness usually about the middle of the patellar tendon directly at its
point of origin from the patella. The pain can commonly be completely but temporarily abolished by the injection of a small amount of local anesthetic. When combined with cortisone the effects may last much longer. The danger is that repeated injections frequently cause degeneration and often lead to rupture or avulsion of the patellar tendon from the patella. This eventuality rarely occurs unless repeated injections have taken place. This painful problem usually subsides with inactivity but may become of such severity and duration as to require surgery. X-ray findings may consist of a small spur or more commonly a very small cystic cavity at the inferior tip of the patella. The surgical treatment consists of exploration of this localized area under local anesthesia and when the precise point of maximum tenderness has been identified by the patient more local anesthetic can be administered to the specific area and curettage of the patella at this point performed. Usually one finds a small amount of inflammatory tissue which, when removed, relieves the symptoms, often permanently. (Figure 6).

**Patellar Tendon Rupture**

When the patellar tendon ruptures it rarely occurs in the middle of the tendon but almost invariably is a pull-off of the fibers from the inferior pole of the patella. It is more common in the young. It is almost always unilateral. In the patient who demonstrates a high riding patella with complete inability to extend the knee tenderness is invariably found at the lower pole of the patella and a palpable gap can usually be felt. Though rupture not infrequently follows repeated injudicious steroid injection it can also occur in the previously undamaged knee with sudden violent contraction of the quadriceps, often accompanied by a direct blow on the lower pole of the patella. The treatment is early surgical repair with suture of the torn tendon to the freshened lower pole of the patella, firmly anchored by means of heavy sutures through drill holes. At times in a poorly controlled patient or in one in whom the injury has been neglected and the quadriceps muscle thereby contracted it may be necessary to anchor the patella down firmly while healing takes place. The one technique that accomplishes this in effective fashion is to place a heavy Steinmann pin across the tibia and utilize a wire loop above the patella to hold the patella down, anchoring the wire below on each side to the Steinmann pin. In this manner it is possible to prevent the quadriceps from pulling off the tendon before healing is complete. Even so, 8 weeks of plaster immobilization is usually needed.

**Tibial Tubercle Avulsion**

The final musculotendinous injury of the quadriceps mechanism is the avulsion of the patellar tendon insertion in the adolescent athlete. The tibial tubercle, which is part of the proximal tibial epiphysis may be pulled loose from its cartilaginous connection to the tibia in the young teenager as a result of violent athletic activity or falls. Clinically this results in upward displacement of the patella and inability to stand or extend the knee. By x-ray one can see the bony mass pulled free from the tibia lying in front of the knee joint. This may be either large or small depending on the amount of tibial epiphysis displaced. The treatment is surgical reattachment of the bony mass which can be most easily accomplished either with screws or a staple. When healing is complete the functional result should be excellent. This is an injury almost entirely confined to adolescents and avulsion of the tibial spine is almost unknown in adults. (Figure 7 and 8).

In summary, the powerful quadriceps muscle, probably the most powerful muscle group in the body, is subject to injuries throughout its length. Most of these are the result of external trauma whether direct or indirect. Many injuries, however, occur as a result of sudden muscle contraction of this powerful muscle, pulling it free from its origin or insertion, or resulting in tears in the substance itself. The location of the quadriceps often makes accurate diagnosis possible by physical by physical examination, frequently the position of the patella, whether up, down or laterally displacement or muscle fragment avulsion can likewise be helpful but it is important to remember that early x-rays often fail to reveal the extent of the muscle pull-off in the pelvis or ossification in an area that will later demonstrate extensive myositis ossificans. Active athletic participation in most sports is dependent on a strong and stable knee which in turn requires a healthy, strong, and pain-free extensor mechanism.

F. James Funk, Jr., M.D.
The first session of the Board of Directors was called to order at 6:30 o'clock p.m. by Mr. Frank George, President. The following were in attendance:

District 1: Wesley Jordan
District 2: Richard Malacrea
District 3: Herman Bunch
District 4: Robert White
District 5: William Flentje
District 6: Eddie Lane
District 7: Warren Lee
District 8: Lewis C. Crowl
District 9: Eugene Smith
District 10: Richard Mulhert
President: Frank George
Executive Director: Otho Davis

ACTION: Approved

Mr. Jordan to accept the above request.

ACTION: Approved

A motion was made by Mr. Malacrea and seconded by Mr. Jordan to have the convention sites in Boston for 1976, Detroit for 1977, St. Louis for 1978, Las Vegas for 1979 and then re-evaluate after that.

ACTION: Approved - Yes - Districts 1, 2, 4, 5, 6, 7 and 8; No - Districts 3, 9 and 10.

ACTION: Approved - Yes - Districts 1, 2, 4, 5, 6, 7 and 8; No - Districts 3, 9 and 10.

ACTION: Approved

A motion was made by Mr. Jordan and seconded by Mr. Thompson to add the names of John Strief, University of Iowa; Lynn Eastern Associates.

ACTION: Approved

A motion was made by Mr. Jordan and seconded by Mr. Thompson to eliminate the "need clause" in item number six (6) under "criteria" for the Robert Gunn Scholarship.

ACTION: Approved

A motion was made by Mr. Growl and seconded by Mr. Lane to accept the above budget request.

ACTION: Approved

A motion was made by Mr. White and seconded by Mr. Crowl to retain Section 3 of the procedures for certification.

ACTION: Approved

A motion was made by Mr. White and seconded by Mr. Crowl to retain the section of the procedures for certification.

ACTION: Approved

A motion was made by Mr. Bunch to accept the above request.

ACTION: Approved

A motion was made by Mr. Growl and seconded by Mr. Lane to accept the above request.

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CURRENT LITERATURE

by
ED CHRISTMAN, A.T.C.


"Care and Treatment of an Ankle Sprain," Schneider, S. Woman Coach Magazine, P.O. Box 867, Wallingford, Conn. 06492. 1:24, May 1975.


"Emergency Medical Care of Athletic Injuries," Moore, R. Emergency Product News, P.O. Box 926, Encinitas, California 92024. 7:184, April, 1975.


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Dr. Thomas E. Shaffer, M.D. (right), Ohio State University, is presented the 1975 President's Challenge Scholarship Award by Mr. Bill Shoemaker as Dr. Robert K. Kerlan, M.D. looks on.
Anaheim, California

Comedian Foster Brooks entertains the NATA members at the Awards Banquet.

Lindsy McLean presents the Eddie Wojeciki Award to Dennis Sealey.

William “Pinky” Newell presenting Eddie Wojeciki Award to Linda Weber Daniel.
Hall Of Fame Recipients: (L-R) Bobby Gunn, Edward Sulkowski, Charles Turner
(Not pictured Rodney Kimball)

Above: Otho Davis (L) and Robert Gunn presenting the 1975 Robert H. Gunn Scholarship Award to John Faulstick, Ball State University, first recipient of the award.


Above: The 1975 Schering Symposium

A balanced presentation of technique and analysis, this unique new book provides a complete, yet easy-to-understand overview of the sport of wrestling. After opening with a foreword by James Lovell, consultant to the President on physical fitness, the book proceeds to examine wrestling through three major sections: academic, practical, and scientific. Included in the academic section are profiles of champion performers; coverage of administration of wrestling programs, camps, workshops, etc. Such thought-provoking topics as professionalism, motivation, and emotional readiness are also examined. The practical skills section analyzes a variety of techniques and maneuvers including takedowns, breakdowns, and controls. It also offers one full chapter on common mistakes and another chapter on officiating. The scientific section provides an unusual chapter on diet and nutrition; examines biomechanics; and closes with instructional research.

The role of women in the area of sports participation and competition is in a current era of great change. With an increased interest occurring and with the rise of athletic opportunities being made available to women, the female participant is rapidly emerging into the arena of sport. Because of this emergence and the rapid rise in women's athletic competition, professionals in the area of sports medicine and athletics have found themselves faced with a multitude of perplexing questions and a surprisingly great lack of research dealing with women in sport to aid in the answering of these questions. The basic questions have dealt with what women can really do in sport—why and how they are different from male participants and, in fact, are they really different? And most important to our area of sports medicine the question that arises is, 'Do women have certain structural and physiological characteristics that predispose them to certain injuries, typical only to her sex, or, are men and women similar in this respect? The emphasis in research is finally including the female athlete and people are exploring these problems and questions, and concrete answers are being made available to us. It is my purpose to present some of these answers and some of the existing knowledge to you.

In considering the structural development of men and women, it is known that the growth pattern between boys and girls parallel one another until the ninth year. At this stage the female enters an adolescent growth spurt and grows taller than the male. Because the male does not begin his growth spurt until approximately fifteen of years of age the female skeleton reaches a greater maturity earlier than the male. Bone ossification occurs much sooner in the female with the epiphyseal unions of bones being completely ossified at age 16 in the female and age 19 in the male. At adolescence there is a large spurt of both bone and muscle growth in the male, with a corresponding loss of fat. The female, in contrast, shows little gain in muscle or bone and a considerable gain in fat. Growth in general terminates in the female between the ages of fifteen and sixteen and the male achieves full maturation and size between the ages of 20-21. It is believed that these extra years of physical growth, under the influence of growth hormones, account for the greater size of males.

The mature male and female skeletons present some differences. The mature male skeleton is more rugged than the female. The bones are more massive and of greater density, and the long bones are longer. The joints are relatively larger and a greater articulating surface exists. The male trunk is characterized by wide shoulders and narrow hips, whereas, the female trunk exhibits a wider pelvis with fat pads over the hip region. The wider pelvis necessitates a greater inclination of the femur shaft with the neck of the femur and diminishes the efficiency of body movements in activities such as running. The knee joint, in terms of its width in proportion to height, appears to be wider in the female and more stable in relation to her size. Because of a female's shorter leg length and broader pelvis her center of gravity is lower than a males and, therefore, her balance is enhanced.

The chest, shoulder width, and thoracic cavity is larger in the male, but the female possesses a larger abdominal cavity due to her larger visceral organs and additional organs of reproduction. Men usually possess the advantage of greater strength in terms of muscle contraction because of the greater bulk of muscles and the resulting cross sectional size.

Circulatory and respiratory differences between the sexes are probably evidences of body adjustments which are necessary for the maintenance of different sized bodies. The heart weight is directly proportional to body weight, therefore the larger male heart is accounted for by his larger physical size.

Considering the respiratory system the vital capacity, which is the volume of air moved through the lungs from a maximum inspiration to a maximum expiration, bears a direct relationship to body size, surface area and height. Females, therefore, would exhibit less breathing capacity than comparable males.

The 10% additional adipose tissue that women possess as compared to men serves as an insulation to prevent excessive heat loss from internal organs. The total body sweat rate is lower in women than in men. Females do not begin sweating until the internal body heat has risen to a slightly higher degree than is the case with men. There is a lessened ability to react to unfavorable heat and humidity conditions in women than in men. This could present major problems under unfavorable environmental conditions, or heavy work done by those not acclimatized and conditioned.

Woman is definitely competent to participate in strenuous activity under all conditions in which man can participate. She is capable of severe endurance events and can reach high levels of performance through the

Marge Albohm received her B.S. degree from Valparaiso, Indiana and her M.S. degree from Indiana State University. She has published several articles concerning athletic training for women and has conducted numerous workshops in athletic training.

Ms. Albohm is the Head Athletic Trainer at Indiana University, Bloomington, Indiana and a faculty member in the Department of Health, Physical Education and Recreation.
utilization of quality training programs, designed to challenge and place overload demands on the individual body systems. Only in those events requiring great strength or explosive power are sex differences in performance more marked. Limitations to female performance appear only when the athlete seeks to compete with the male on a common ground in which areas of size, strength and speed are major factors. In some individual and non-contact sports that do not emphasize the factors of size, strength and speed, participation between males and females can occur on a very equal basis.

Woman has not come close to realizing her potential in sport nor has she been challenged to a great enough degree. She is capable of attaining great goals, and her status and stature in sport will certainly improve.

Due to the relatively slight differences in structure and physiological parameters between men and women, the mechanisms that produce certain types of injury in the male are also responsible for similar injury in the female. The types of injuries may vary and the frequency patterns may differ due to different demands placed on the individual because the sport itself requires a different movement, skill or activity. Women do not experience the number of head, neck and upper body injuries that the sport of football presents, but they do incur many lower leg contusions from contact with the ball and stick in the sport of field hockey. Since women do not compete on the rings in gymnastics they do not experience a great number of head contusions because of the event involving the uneven parallel bars. The concept that I would like to emphasize is that an injury is an injury - an ankle sprain is an ankle sprain regardless of whether it occurs in a man or a woman. The existing difference in injuries is due to the different sport activities that men and women are involved in and the different injuries that these sport activities present.

The somewhat slighter bone structure, smaller proportion of muscle to adipose tissue and somewhat more delicate ligamentous and tendinous structures may account for some additional injury among women, especially in sports involving explosive effort or sudden checking of speed and momentum of the body. However, the development of strength in prime muscle groups through quality weight training and conditioning programs will lessen the possibility of the occurrence of injury and will reduce the severity of those injuries that do occur. A musculature is strengthened, the strength of ligaments and tendons will develop and the joint will become more effective in performance and protection.

The reproductive organs of the female are quite well protected and when the body receives a severe blow, the force transmitted to the internal organs is much less than that experienced by the surface of the body. I have not experienced any problems which would suggest that additional protection is needed in this area. To date, we have not experienced any problems with specific injuries to the chest area either and there is no data available to suggest that there is a need to provide any additional protection for the female breast.

The body proportions of the female make her quite adept at activities involving balance, stability and flexibility, however, the broader pelvis creates a lateral sway of the body in movement and could produce poor running mechanics and may cause injury. The hips tend to have an exaggerated sideways movement and create an unnecessary sideways force. The wider pelvis also contributes to the problem of subluxation or dislocation of the patella which is more commonly seen in women than in men. Because of the pelvic width, a knock-knee tendency occurs in women when running or standing. The line of pull of the quadricep muscle group passes to the outside of the patella rather than through its center as it usually does in men. This results in the patella drifting laterally when the quadriceps contract. All women do not experience this injury. It has been found that some individuals may be predisposed to patellar dislocation due to several factors. A patella, abnormally flattened on its undersurface increases the possibility of subluxation or dislocation. A previous knee injury, not fully rehabilitated, producing an asymmetrical pull of the quadriceps could contribute to the problem. If the groove that the patella slides in, which is located between the condyles of the distal end of the femur, is shallow, or if the lateral condyle is flattened, the patella has a greater tendency to slip laterally out of the groove each time the quadriceps contract.

As mentioned earlier, the closing of the epiphyseal lines, and bone ossification occurs earlier in females than in males. Because of this care should be taken in preventing stressful situations during the time of growth spurt and possibly somewhat earlier than is currently considered.

It has been frequently observed that women seem to bruise more often and more severely than men. To my knowledge this observation has not been researched and definite answers are not known. Bruising in the leg and thigh area may be more visible in women due to the lack of heavy hair growth and possibly due to a difference in skin texture.

Shin splints appear to occur more frequently in women than in men. This seemingly greater occurrence of shin splints in women may be attributed to the anatomical difference in pelvic structure and femur articulation or a mechanical difference in walking patterns or weight bearing techniques caused by types of shoes worn. It is most likely due to a great lack of proper conditioning that is a common occurrence in women's sports. Because the sweat threshold for women is higher than men, and there is a lessened ability to react to unfavorable heat and humidity conditions, more consideration should be given to effects of heat on the female participant.

Is the female athlete then, really different from her male counterpart? The answer that I would conclude based on the information available to us is basically no. Although minor differences may be presented, the structure and function of the two individuals is basically alike and should be managed in a similar fashion.

**BIOBIOGRAPHY**


A rare football injury occurred during the Fall of 1973, at Tennessee Tech. The scout team quarterback suffered a complete dislocation of the left hip while practicing on our artificial turf.

The mechanics of the injury were as follows:
1. The player was attempting to roll-out to his left.
2. The defensive end and the outside linebacker were converging on him, with the end hitting him low on the front of the leg and the linebacker hitting him higher and to the left side of the leg.
3. The left leg was rotated medially, adducted and flexed at the hip joint, while the knee joint was flexed.

Therefore, the hip joint was placed in the optimal position to be dislocated when a considerable force was applied to it.

The following symptoms according to O'Donoghue (1) were observed:
1. The player was disabled at once.
2. He had severe pain in the hip area and resisted any manipulation of the joint and limb.

3. The leg was held with the thigh internally rotated and adducted with the knee resting above and against its fellow on the opposite side.
4. The trochanter appeared quite prominent.
5. Motion of any kind from the fixed position on No. 3 causes severe pain.
6. Diagnosis was confirmed by x-rays.

The immediate management of the injury consisted of splinting the leg to the opposite one by several elastic bandages. It should be emphasized that neither a traction splint nor an inflatable full-leg splint were used since the leg could not be manipulated enough to apply them.

A scoop stretcher was placed under the victim and he was securely strapped to it. The scoop was in turn strapped to a standard ambulance cot for the trip to the hospital.

Upon arrival at the emergency room, the team physician administered pain medication. X-rays were taken to confirm the diagnosis of a dislocated hip.

Closed reduction was accomplished under general anaesthesia in the following manner:
1. The player was in the supine position.
2. The team physician stood on the operating table straddling the affected leg.

3. The hip joint was flexed to 90 degrees.
4. The knee was flexed to 90 degrees.
5. The doctor pulled upward forcefully on the flexed lower leg by holding the gastrocnemius and at the same time he rotated the leg at the hip joint laterally. A trainer applied counter traction downward by placing his hands on the anterior superior iliac spines and pushing down as the doctor pulled up on the leg.
6. The head of the femur "popped" back into the acetabulum with a distinct "pop".

The player was admitted to the hospital for two weeks of absolute bed rest with five pounds of traction to the leg.

After the two weeks of bed rest, he was allowed to use crutches for four weeks with the stipulation that absolutely no weight was to be borne on the injured leg.

Rehabilitation of the injury was not carried out at Tennessee Tech since the player withdrew from the school at the end of the Fall Quarter and did not return.

BIBLIOGRAPHY

A Method for Examining Knees for the Presence of Rotary Instability

by

STEVE BROWN, A.T.C.

There is a great deal of interest among athletic trainers concerning rotary instability of the knee. It is apparent that this is becoming a very important factor in determining the total stability of the knee. This paper concerns a technique, derived from Slocum, (1) for examining a knee for the presence of rotary instability.

The first and most important consideration in describing this examination is a knowledge and understanding of the anatomy and function of the different structures involved. These structures are as follows:

A. ANTERIOR CRUCIATE LIGAMENT

ANATOMY: Attaches to the anteromedial border of the tibial spine and extends to the posteromedial border of the tibial spine and extends to the posteromedial border of the lateral femoral condyle. (see Plate 1).

FUNCTION: Limits internal rotation of the tibia on the femur by wrapping around the posterior cruciate ligament. Limits extreme external rotation of impinging on the medial portion of the lateral femoral condyle. Also limits

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Steve Brown, is a licensed Certified Athletic Trainer. He has a B.S. in Health & Physical Education, from a Texas Tech University, 1973. He has been assistant trainer at Rice University, Houston, Texas since July 1973.


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**ANTERIOR CRUCIATE LIGAMENT**

ANATOMY: Semi-lunar shaped cartilages located between the femoral condyles and the tibial table. (See Plate 1).

FUNCTION: Shock absorption, stability, lubrication and most important, rotary motion of the knee occurs between the menisci and tibia.

---

**B. MEDIAL AND LATERAL MENISCI**

ANATOMY: This complex is divided into three portions: (1) anteromedial corner; (2) mid portion (medial collateral); (3) posteromedial corner. (See Plate 1).

FUNCTION: Stabilizes the knee against medial and rotary stresses.

---

**C. MEDIAL CAPSULE**

ANATOMY: This complex is the posterior aspect of the joint capsule. It extends proximally from the femoral condyles, distally to the tibial table. It also extends from the posteromedial portion of the capsule to the posterolateral portion of the capsule.
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FUNCTION: Stabilizes the knee in extension. This occurs even if the medial structures are damaged.

E. OBLIQUE POPLITEAL LIGAMENT (5)
ANATOMY: From the semimembranosus attachment on the posteromedial portion of the tibia, obliquely and laterally to the origin of the lateral head of the gastrocnemius. (See Plate 2).
FUNCTION: Stabilizes the posterior aspect of the knee during extension.

F. POPLITEUS MUSCLE AND ARCUATE LIGAMENT
ANATOMY: The popliteus muscle has three insertions: (1) lateral femoral condyle; (2) Posterior fibular head; (3) posterior horn of lateral meniscus. These linkages by capsular and meniscal tissues are collectively called the arcuate ligament. The popliteus originates on the posterior aspect of the tibia. (See Plate 2).
FUNCTION: The popliteus muscle is a medial rotator of tibia on femur and also pulls posterior horn of lateral meniscus posteriorly during knee flexion. Most importantly the popliteus muscle
and arcuate ligament complex provides stability by preventing forward displacement of tibia on femur during knee flexion.

**G. POSTERIOR CRUCIATE LIGAMENT**

**ANATOMY:** Attaches from mid-portion of the posterior aspect of the tibial spine and extending to the medial border of the medial femoral condyle. (See Plate 3).

**FUNCTION:** Mainly responsible for limiting posterior displacement of tibia on femur. This is the prime stabilizer of the knee. (7).

With this basic understanding of the structures and functions involved, the examination will now be described.

---

**STEP ONE**

The position of the player is of utmost importance. The subject should be supine, with both legs relaxed, the knees flexed to approximately 60 degrees, and the feet parallel (See fig. 1). This position allows the cruciates to be in uniform tension and the posterior components of the capsule to become relaxed. (4)

The examiner sits with his thigh over the feet of the player and performs the standard drawer test (See fig. 2). The amount of displacement of the uninjured knee should be noted and compared to the injured knee. It is important to examine the uninjured knee first so as not to aggravate the injured knee by unnecessary repeated examinations. This position allows one to test the anterior cruciate ligament without any interference from the posterior capsule. (4)

**STEP TWO**

The second drawer test is performed by the examiner after internally rotating the feet 30 degrees (See fig. 3) and stabilizing them with his thigh. This position tightens the anterior cruciate ligament since it is now wrapped around the posterior cruciate ligament. However, it should be noted that according to Slocum (1), this position also stresses the
posterolateral capsule, posterior cruciate, popliteus tendon and lateral collateral ligament. Therefore, if increased forward displacement is present in this position, there is a laxity in these structures.

STEP THREE
The third drawer test is performed with the feet externally rotated 15 degrees (See fig. 4). This position allows stress to be placed on the posteromedial capsule and anterolateral corner of the joint. This is the most important aspect of the entire examination, since a positive drawer test with the feet externally rotated yields the diagnosis of rotary instability, which is caused by a posteromedial capsular tear. This tear is often related to a tear in the posterior horn of the medial meniscus and is overlooked, especially if there is laxity in the anterior cruciate in conjunction with a strain of the medial collateral. The injury is typically classified as an "Unhappy Triad" (6) and the posterior capsule is ignored.(3)

The laxity in all position should always be compared with the opposite knee. The information is then compiled, and an intelligent evaluation is made as to the total stability of the joint. Remember that this examination is always used in conjunction with the usual procedures for testing knee stability. It is not a replacement for the medial collateral, lateral collateral, or any other ligament stability test. It is simply an additional test to help the examiner make a more thorough examination.

SUMMARY
Rotary instability is an abnormal anteroposterior motion combined with internal and 7/8 of external rotation of the tibia. It is caused by a tear in the posteromedial ligament complex of the knee. This is the primary cause of an unacceptable performance in sports as related to instability. It is recognized by the athlete as a knee that 'goes out' and is diagnosed by the physical findings described above.

REFERENCES


September 13-19, 1975 — The American Academy of Orthopedic Surgeons will sponsor an Academic Day with the topic, "Perplexing Fracture Problems" it will be held in Portland, Maine. For information contact, Lawrence Crane, M.D., 157 Pine Street, Portland, ME 04102.

September 22-24, 1975 — The Physician and Sports Medicine and The Hahnemann Medical College will sponsor the meeting, "Sports Medicine and Private Practice", in Philadelphia, Pennsylvania. For information contact, Robert Schaefer, Department of Continuing Education, Hahnemann Medical College, 230 North Broad Street, Philadelphia, PA 19102.

October 13-17, 1975 — A Clinical Congress of The American College of Surgeons will be held in San Francisco, California. Contact, The American College of Surgeons, 55 East Erie, Chicago, IL 60611 for more information.

October 30-November 1, 1975 — The American Academy of Orthopedic Surgeons will hold a meeting with the topic "The Pine" in Durham, North Carolina. For further information contact James Urbaniak, M.D., Duke University Medical Center, Durham, NC 27706.

November 3-5, 1975 — The American Academy of Orthopedic Surgeons will hold a course "Newer Concepts in Fracture Healing and Treatment" in Philadelphia, PA. For further information contact Victor Frankel, M.D., 2065 Adelbert Road, Cleveland, OH 44106.

November 6-8, 1975 — The American Academy of Orthopedic Surgeons will sponsor "The Foot; Child and Adult" in Dallas, Texas. Further information may be obtained from F. Leon Ware, M.D. 3600 Gaston Avenue, Suite 303, Dallas, TX 75246.

November 10-12, 1975 — The American Academy of Orthopedic Surgeons will sponsor the course "Orthopedics — Engineering — Rehabilitation; — A New Area", in Chicago, Illinois. For further information contact Paul R. Meyer, M.D., 233 East Erie Street, Chicago, IL 60611.

November 21 - 23, 1975 — The Southern Regional Athletic Trainers Conference at the Pinehurst Hotel, Pinehurst, N.C. If interested in attending write to Al Proctor, Director of Sports Medicine, Department of Public Instruction, State of North Carolina, Raleigh, North Carolina 27611.

December 12-14, 1975 — The American Academy of Orthopedic Surgeons will hold a course in "Recent Developments In Total Joint Replacement" in Miami Beach, Florida. For information contact Augusto Sarmiento, M.D., P.O. Box 520875, Biscayne, Annex, Miami Beach, FL 33152.

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, OK 74074.
Dear Editor:

Congratulations to you and your staff in producing such a fine June issue of "The Journal". I'm sure that I am not alone in saying that all the articles, and especially the Schering Symposium articles on foot and ankle injuries, were extremely pertinent to us all.

Keep up the good work.

Respectfully yours,

David H. Shon, A.T.C.
Athletic Trainer

Dear Editor:

I would like to take this opportunity to thank the National Athletic Trainers Association for choosing me as one of the recipients of the William E. Newell Scholarship Awards. To win an award in honor of a man of such high standards as Mr. Newell is truly a great honor.

Many people were instrumental in aiding me to receive this award. They are Mr. Rod Compton, Sports Medicine Director and Dr. James Bowman, team physician at East Carolina University and also my fellow student trainers at ECU.

Again thank you for the honor of receiving the William E. Newell Scholarship Award.

Respectfully yours,

Kirby E. Patterson
Student Trainer
East Carolina University

Dear Editor:

I am setting up a student training course in my high school and need some expert assistance.

If anyone has any manuals, handouts, charts or any other material that could be used in a high school training class could you send me information on how I can obtain these materials?

Please send to the following address:

James Frye
518 Illinois St.
Park Forest, Ill. 60466

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ATHLETIC TRAINING - Volume 10 - Number 3 September 1975
NATA JOURNAL MEMBERSHIP SURVEY

Survey closing date is November 30, 1975. Please do not send in after this date.

Subject: Journal Interest

Circle appropriate response in left-hand column.

A B C D E 1. Membership classification: A. Certified B. Active C. Associate D. Student E. Other
(Specify)


Please indicate your feelings on the departments of the NATA Journal below and make additional comments in the space provided.

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A Comment On Tennis Elbow

by PROFESSOR K. K. KLEIN

"Tennis Elbow", one of the knotty injury problems of the racquet enthusiast has had numerous approaches to its solution. An attempt to define the problem is similar to that of "shin splints". Both injuries have had numerous definitions with some variation. The athlete plagued with this problem has observed and possibly experienced numerous approaches to treatment. One procedure may be effective for one while other forms of treatment are successful for others. But what about the racquet "buff" that has run the gamut of traditional treatment with no success i.e. rest, stretching, exercise balms, whirlpool, ultrasound, etc. and still has the problem when he gets back on the court?

It may be possible that in the application of traditional treatment the athlete is too anxious to get back on the court and doesn't honestly take the full amount of treatment necessary to overcome the existing problem. Of course for these we can only extend our sympathy and recommend continued treatment in seeking the solution to the problem. My concern is with those who have followed all of the directions and still are faced with the dilemma. The following procedure has proven to be successful in such "knotty cases".

Take two wool sweat socks and cut off the toe part of the foot. Slide the two socks together into a tube and sew the two socks together to form one unit. The tube can then be pulled up on the arm, across the elbow, with the elbow fitting into the "heel". A ring of tape, not too tight, can be placed around the sock above the elbow to keep it from slipping down. When this single "wrap" is worn during play it keeps the elbow joint warm and eliminates the painful symptoms of tennis elbow. After playing the tube can be slipped off and be ready for the next encounter. It should be part of the players outfit.

This simple procedure has been used on a number of squash and tennis players who have tried all of the other treatment procedures without success. They find that they are able to participate "pain-free". Some have even applied a balm on the arm beneath the sock application to enhance the procedure while others found just the sock was sufficient. Apparently the extra production of heat to the area is the working solution. "Try it, you'll like it!"
Adequate warm-up (more than two minutes of easy jogging) can be effective in reducing the ischemia. Reduced oxygen supply to the heart due to myocardial infarction following participation in sprint races. A young girl from Florida died after running a relay race during recess. A teenage boy from California died after running a wind sprint in football practice. Autopsy reports on both of these young people showed no vascular obstruction which would limit oxygen delivery to the heart. Three men participating in Senior Swim Meets died after racing in the 50 yd. dash. Most athletes feel that stretching and warm-up exercises are important to prevent muscle and tendon injuries but what effect does warm-up or the lack of it have on the heart?

The results of two studies suggest that the adaptation of coronary blood flow to a rapid increase in cardiac work is not instantaneous and periods of ischemia (inadequate oxygen supply) may occur in hearts without apparent vascular obstruction. Adequate warm-up (more than two minutes of easy jogging) can be effective in reducing the ischemia. These findings provide a physiological basis for performing warm-up prior to sudden, strenuous activity. Although warm-up is suggested for everyone, it is most important for individuals who have reduced oxygen supply to the heart due to vascular obstruction or anemia. Similarly, individuals who have excessive demands on their hearts due to hypertension, aortic stenosis, etc. should not perform sudden exercise without adequate warm-up.

Football and Football Equipment

The U.S. Consumer Product Safety Commission estimates that each year over 200,000 people receive hospital emergency room treatment for injuries associated with football and football equipment. Most injuries occur in high school and college sports activities. Here are some typical accident patterns:

1. Knee and head injuries, and other cuts and bruises, often caused by sharp edges on the outside of opponents' protective equipment.
2. "Spearing" an opponent with a helmet - This is a violation of the rules but is a frequent cause of injuries.
3. Long cleat shoes causing injuries to opponents.

In terms of frequency and severity of injuries, football is more hazardous than any other sport. Because of its hard body contact, football is inherently hazardous. However, there are some measures which you can take to play football more safely. The U.S. Consumer Product Safety Commission makes the following suggestions:

1. Protective Equipment
   - Use soccer shoes which have short, flat heel cleats to reduce injuries to other players.
   - Use helmets which provide as much protection as possible for your face, without having protusions which could injure your opponents.

2. The Player
   - Repeat injuries can be a particular hazard. After an injury, check with your physician before you resume playing.
   - Play with others in your own size and weight group.
   - Learn the rules of the game and follow them. Many injuries are caused by violations of existing rules. Game officials should enforce the rules stringently.

3. The Environment: Coaches, Playing Field, and Practice Sessions

   Look for a coach who promotes safer play.
   - If the field has holes in it or is littered, you run a greater risk of injury. Survey the field and keep it clear and in good condition.
   - Limit tackling and blocking when you practice. Some experts believe these hazardous activities should be performed as infrequently as possible, perhaps only in actual games. Be aware that half of all football related injuries occur in practice.

The Injured Ankle

According to Dr. James Garrick, there are few sports that spare the ankle. The ankle ranks among the three most commonly injured anatomic regions (with the knee and shoulder) in athletes at virtually every level of participation.

In a recent study of 1,650 high school students participating in 17 sports in four schools, there were 618 time-loss athletic injuries, 99 of which involved the ankle. Participants in two sports - swimming and tennis - sustained a total of ten injuries, none of which involved the ankle. Ankle injuries, however, occurred in every other activity. Wrestling resulted in the lowest portion of ankle injuries (6%), while men's basketball resulted in the highest (53%). In the remaining sports, from 10-20% of all injuries involved the ankle. Thus, regardless of whether the sport, running, throwing, tackling, or jumping, the ankle is frequently injured with a most unique characteristic that the vast majority of the injuries fall into a single type/location category. Shoulder...
Injuries involve many structures (rotator cuff, acromioclavicular ligaments, the menisci, the patella, etc.). On the other hand, in our experience at the high school and college level, ankle injuries are sprains in over 75% of the cases and the vast majority of these sprains (75-85%) involve primarily the lateral collateral ligaments. Thus, one can cover about two-thirds of the ankle injuries occurring in sports by merely discussing the inversion sprain.

No Significant Difference In Isometric and Isotonic Groups

Freshman and varsity college football players were studied by Meadows (19) to determine the effects of isometric and isotonic strength training on the speed and force of the offensive football charge. The charge was for a 6-foot distance from a 3-point stance; force was measured as the impact against a blocking pad on the Crowther blocking sled. Three groups of 28 men each were employed: isotonic, isometric and control. The strength training sessions were held three times a week for 10 weeks, as follows: isotonic group, six progressive weightlifting exercises based on 10-RM; isometric group, two maximum 6-seconds contractions of hip, knee, shoulder and elbow movements. Most of the control group participated in regular physical education. Both experimental groups improved significantly on both the speed and the force of the offensive football charge, while the control group did not change significantly on either test. The differences between the isotonic and isometric groups on the tests were not significant.

Weight Training and Motor Fitness

Campbell (7) studied the effects of weight training on the motor fitness of college football, basketball, and track and field squads during their competitive seasons. To measure motor fitness, the composite T score for the following seven tests was used: right grip, jump and reach, squat thrusts, pullups, situps, 300-yard shuttle run and 50 yard dash. Each of the three sports squads was divided into two groups, matched by motor fitness composites, at the beginning of the respective seasons, known as A and B groups for each sport. From the opening day of the season until midseason, each A group took regular training for its sport and also followed, twice a week, a progressive weight training program designed for the respective sports; the B groups added weight training. In all instances, motor fitness improved significantly, beyond the regular sports training, as a result of strength conditioning with weights. When weight training was dropped, motor fitness declined. The investigator concluded that weight training should be started well before the competitive season and continued throughout the season. The study did not investigate improvements in playing the various sports as a consequence of strength development through supplemental weight training activity.
A motion was made by Mr. Flentje and seconded by Mr. Melhart to accept the report.

ACTION: Approved

XXXVIII. Following a brief discussion on the office of Vice President, Mr. Flentje nominated Eddie Lane which was seconded by Mr. Smith and moved by Mr. White to close the nominations. Eddie Lane (Van Alstyne Independent School District (District 6) was elected the Vice President of NATA for 1975-1976 by Board members.

XXXIX. There was a discussion on the expansion of Marshall University from District 4 to District 3.

A motion was made by Mr. Bunch to transfer Marshall University from Huntington, West Virginia from District 4 to District 3.

ACTION: Approved

XX. The National Operating Committee for Athletic Training presented a report by Frank George was presented to the Board for discussion.

A motion was made by Mr. Jordan and seconded by Mr. Flentje to accept the report.

ACTION: Approved

XXI. The Board of Directors held a lengthy general discussion on a change of the name of Mr. Fritz Massman to the position of computer service.

ACTION: Approved

XXII. There was discussion on moving the NATA convention to cover the anticipated expense of examination revision in 1975.

ACTION: Approved

XXIII. There was discussion on the 1976 convention in Boston and on the 1977 convention in Dearborn, Michigan.

ACTION: Approved

XXIV. Lindsy McLean, Chairman of the Certification Committee appeared before the Board for his committee report.

ACTION: Approved

XXV. The Division for Girls and Women's Sports report by Holly Wilson was presented to the Board for discussion.

A motion was made by Mr. Flentje and seconded by Mr. Melhart to accept the report.

ACTION: Approved

XXVI. There was discussion on the office of President, being paid by NATA.

ACTION: Approved

XXVII. The letters "ATC" are the official meaning for Athletic Trainers who sature, aspire and inject in the course of their duties. The membership should become familiar with the individual state laws on this subject.

ACTION: Approved

XXVIII. The Illinois Athletic Trainers Act was briefly discussed by the Board.

ACTION: Approved

XXIX. The Board discussed the problems of Athletic Trainers who sature, aspire and inject in the course of their duties. The membership should become familiar with the individual state laws on this subject.

ACTION: Approved

XXX. The Research and Injury Committee did not submit a report.

ACTION: Approved

XXXI. The Allied Association for Health, Physical Education and Recreation report by Bud Miller was presented to the Board for discussion.

A motion was made by Mr. Lee and seconded by Mr. Crow to accept the report.

ACTION: Approved

XXXII. The American College Health Association report by James Dodson was presented to the Board for discussion.

A motion was made by Mr. Lane and seconded by Mr. Flentje to accept the report.

ACTION: Approved

XXXVII. The National Operating Committee on Standards for Athletic Equipment by Tom Wall was presented to the Board for discussion.

ACTION: Approved

LXVI. Executive Director Davis presented the NATA Awards Banquet.

ACTION: Approved

LXVII. Comments presented to the membership by John Sciera (Vernon Eschenfelder added following convention)
USOC, then that trainer has not violated the code of Ethics.

A trainer has not submitted his or her name directly to Trainers. NATA has, in the past, been asked by the Code of Ethics. They have something to contribute. Also, please be complaint with regard to this one particular subject of democratic the decision of the board will be.

Now, let me indicate, first of all, that the Continuing Education Program has not developed as we hoped it would because of administrative problems. It will probably be at least another year or longer before the pilot study is begun.

Now, the Board of Directors, Executive Directors and the Education Committee, have heard a number of complaints with regard to this one particular subject of continuing education and yet, in this respect, there was likewise a question inserted in the Journal for your reply and only 7.5 percent of the membership responded to that particular question.

Of those that responded, some 76 percent responded in the affirmative. In the near future we should have a Continuing Education Program.

Now, ladies and gentlemen, let me emphasize that we don't do violence to you if you do not know all the questionnaire, then we just are not made aware of your feelings with regard to this matter.

Now, there is probably no subject that has caused more problems for me than the selection of Olympic Trainers. NATA has, in the past, been asked by the USOC to send a recommended list of trainers to them.

Now, let me emphasize — the NATA does not select the trainers who go. The United States Olympic Committee does this.

The names which the NATA sends to the USOC are selected by the USOC and not by the NATA Districts for Ethics.

If an NATA member submits or solicits his name directly to the USOC, that is a violation of the National Code of Ethics.

If the USOC selects a trainer not on that list and the trainer has not submitted his or her name directly to NATA, then that trainer has not violated the code of Ethics.

Now, we are going to have a speaker on our program tomorrow, an attorney from Iowa City, and he will be speaking on the legal implications with regard to, for example, the Athletic Trainer who, among other things, decides to be a team physician in the near future.

At the present meeting, NATA does not have an official policy statement regarding the matter of saturating, aspirating and injecting in the athletic trainer's offices. This is a most difficult subject to approach because of the number of variables that are involved.

When the term "aspirate" is used, there is a great difference between aspirating, for example, a blister and aspirating, for instance, a fluid or aspirating a blister when there is evidence of clear fluid or aspirating a blister when there is evidence of blood also, when considering injections, routine immunizations are quite different from nerve blocks to anesthetize a particular area.

Basically, an Athletic Trainer should not perform any procedure which would violate his particular state law or the NATA Code of Ethics. For example, in some states only doctors and licensed nurses are allowed to inject.

The Athletic Trainer should always first have the permission of an supervision of a team physician for any procedures which involve physicians and the code of Ethics.

Now, I am sure that many of these duties are included as standing operating procedure. However, every trainer -- every physician relationship is somewhat different and, therefore, making each situation different.

In Article I, Section 3 of the NATA Code of Ethics it states that "A NATA member shall not put the details of the doctor's orders but go beyond the scope of the trainer's duties or the doctor's instructions."

In Section 4, or Article I of the Code of Ethics it states — "The NATA takes a strong stand against the unauthorized use and non-therapeutic use of drugs. Any trainer who violates this code will not be considered by NATA as a professional and, in other words, is guilty of breach of ethics."

Personally, I don't feel athletic trainers have any business putting their name for nerve blocks or suturing incisions. NATA has asked a lawyer to look into this problem and they stated — "this is what should be done.

As I said, we will have a speaker concerning this matter on tomorrow's program.

Now, there are currently three pieces of federal legislation which were introduced or indirectly, the athletic trainer. Hopefully I can clear the confusion which has developed concerning this legislation.

There was an article which was published in BIKES Sports Trail. This article, for example, states that all three pieces of legislation have been passed by Congress and had been signed by President Ford.

Now, this, in reality, not a true statement and so I can say to you now that everything you read, we will try to keep you informed, what was printed there, in reality, a mistake. Now, because it is in print, then it is true. Not true.

The three pieces that were allocated to this article were, the Athletic Trainer Act — the Athletic Safety Act of 1972. That was an amendment to the Occupational Safety and Health Act. It deals with the safety of athletic facilities. It concerns the number, for example, of fire extinguishers in the field house, the type of valves in the shower room and the matter of worker's compensation for athletic injuries.

This Act was reintroduced in Congress this year if and Congress decides to amend OSHA, then Congressman Dellums will push for this amendment. However, this has not been passed by Congress nor signed by the President.

The next amendment to the Elementary and Secondary School Act of 1975 and the Higher Education Act of 1965. This is known to us as the Dellums Bill.

This, for example, would require institutions engaged in intercollegiate athletic competition to employ Certified Athletic Trainers. This form has been reintroduced in Congress. It was explained to me that it had been reintroduced so Congress will have something to do when the results of the Forsythe Amendment are tabulated.

The Dellums Bill is not passed by the Congress and has not been signed by the President. The Forsythe Amendment is the piece of legislation. This is Title XI, House of Representatives Bill No. 69.

Congress has passed this — President Ford has signed it and it provides $75,000 for a special survey of athletic injuries and deaths in secondary schools and institutions of higher education. This includes 650 colleges — 650 junior colleges and high schools.

This is the NAIRS Study. It is coming out of Pennsylvania State University but it is not NAIRS.

This is a special President's Education and Welfare Study and it is the one which probably many of you in this room have received a letter on either from your high school principal, your school president or someone else. It will probably begin next September.

Now, getting on to another subject, as you know, one of the major problems which faces this Association is meeting the medical needs of the high school athlete. We feel their needs can be met through the concept of a faculty trainer program.

In the near future we will be going into this in a great deal of detail. However, I feel it is worthwhile to mention this now.

If you saw the advertisements regarding this, you will find that the Dellums Bill has been reintroduced in Congress this year if and Congress decides to amend OSHA, then Congressman Dellums will push for this amendment. However, this has not been passed by Congress nor signed by the President.

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Now, my main purpose in being here today is to tell you a little bit about what the Cramer First-Aider did here a few months ago. They ran something in there for the student trainers and the response to that was just marvelous, just unbelievable. As a matter of fact, I cannot even express in words how I felt when I started receiving these letters. As a matter of fact, I received literally, all parts of the United States and Canada. It includes females, doctors, certified trainers, student trainers — all of them, for example, writing letters that they wanted to be part of this meeting to bring our concerns to the attention of Congress even paying their own expenses. We had trainers indicating that if they could not come, they would send money for other student trainers to come.

If you wanted to know how they could help out in other ways.

If you read the few letters, it really became difficult on how to pick people to send.

Now, I am sure some of you will receive letters accepting your offer of volunteering for this and others of you have been turned down and, in those cases, I am sorry about that.

As I said, in connection with these hundreds and hundreds of replies, we can only really handle about 15 trainers, 10 student trainers, etc. Therefore, we just put these as candidates that picked them and that is the way it was.

Now, I am sorry if you were not picked.

Now, my real purpose in being here is to express thanks to you and, really, it is beyond my capability to express in words the thanks of all of us from the International Association feel about the responses from you people. I can assure you that the NATA will be duly recognized by these people in our Association.

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GUIDE TO CONTRIBUTORS

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

1. Eight copies of the manuscript should be forwarded to the editor and each page typewritten on one side of 8½ x 11 inch plain paper, triple spaced with one inch margins.

2. Good quality color photography is acceptable for accompanying graphics as well as glossy black and white prints. Graphs, charts, or figures should be of good quality and clearly presented on white paper with black ink, in a form which will be legible if reduced for publication.

3. The list of references and citations should be in the following form: a) books: author, title, publisher with city and state of publication, year; b) articles: family names, initials and titles of all authors, title of article, journal title, with abbreviations accepted as per Index Medicus, volume, page year. Citations in the text of the manuscript will take the form of a number in parenthesis, (7), directly after the reference or name of author being cited, indicating the number assigned to the citation in the bibliography.

4. It is the understanding of the editor of Athletic Training that manuscripts submitted will not have been either previously published nor simultaneously submitted to another journal. The author accepts responsibility for any major corrections of the manuscript as suggested by the editor.

5. It is requested that each submitting author include a brief biographical sketch and acceptable photograph of themselves. Please refrain from putting paper clips on any photograph.

6. 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.

7. Unused manuscripts will be returned, when accompanied by a stamped, self-addressed envelope.

Address all manuscripts to:

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

Clint Thompson
Department of Athletics
Michigan State University
East Lansing, Michigan 48824
1975 Schering Symposium Papers

The NATA must again tip its hat to the Schering Corporation for the very fine 1975 Schering Symposium during the Convention in June. Beginning with this issue, each of the next four Journals will have a paper from the presentations given in the Symposium, dealing with “Musculotendinous Injuries”. I am sure all members of the NATA will benefit from the information.

Journal Evaluation

Please take note and participate in the Journal Survey (see page 170) in this issue. We are trying to feel the pulse of the membership concerning what you want to see in, and out of, the Journal. It will only take a few minutes to check the appropriate answers, make comments, fold, staple and mail the survey. It will greatly help the Journal Committee do a better job of giving you what you want.

“Case Study” Added

A new section appears in this issue. “Case Study” will give trainers and team physicians the opportunity to show how an unusual or interesting athletic affliction was cared for by first hand experience.

Should you have such a case and want it considered for publication, send it to Clint Thompson at Michigan State University. Case Study type of papers usually will not have to go through the entire Editorial Board. Please use illustrations and/or photos whenever possible.

Don’t Use Your Head

At the 1975 Convention the NATA came out with its official stand concerning spearing, butt blocking, etc. in football. It reads as follows:

“The National Athletic Trainers Association is dedicated to the prevention of injuries in athletics. Head and neck injuries have been documented as injuries of severe magnitude and the leading cause of fatalities in football.

Be it resolved that the NATA is on record opposing the use of tackling and blocking techniques with the helmet and or face mask as the initial point of contact.

Be it further resolved that the NATA is opposed to the teaching of these techniques in football."

End of resolution.

This was approved by the Board of Directors on June 11, 1975 — in Anaheim, California.

Each member should do his best to help see that such techniques are reduced, if not eliminated. Talk with your coaches and players and discuss the serious hazards of such techniques. Should you notice spearing going on during a game bring it to the attention of the officials. The player’s life you save may be one of your own!!

---

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PIONEERS IN HYDROTHERAPY
SCHOLARSHIP INFORMATION

The Association has inaugurated an undergraduate and professional study program honoring outstanding students from the N.A.T.A. membership who have excelled academically as student athletic trainers. This is in the amount of $500.00 and is being awarded annually to a high ranking student in college or a university who has participated with distinction in an athletic training program.

There is also one Grant of $500.00 being awarded annually to a high ranking senior in college or a university who has participated with distinction in a student athletic training program. This award is intended to encourage the continuing education of the individual beyond that of a baccalaureate degree.

The Committee has helped establish, with Board of Directors approval, two annual Scholarship awards. The award is based upon superior performance on the National Certification Examination during the preceding calendar year. The award has been named in honor of the late Eddie Wojciki, head athletic trainer and Helms Hall of Fame recipient from Rice University. The sponsoring firm, Larson Laboratories, Inc., has agreed to include a cash Grant of $250.00 in addition to the award itself to even further assist the winners in achieving their education objectives in Athletic Training.

Protective Products, Division of Becton Dickinson and Company, through the Association has established an annual award, the Presidents Challenge Award, to be given for outstanding contributions in Sports Medicine by a doctor of Medicine or Osteopathy. The single award includes an extremely nice trophy, custom made for the doctor, so that he may display and always remember this award. Another aspect of the recognition to the honored individual is the privilege of selecting a worthy individual or institution as the recipient of a $500.00 grant for either research or education in Athletic Health Care.

In June, 1974, The Board of Directors approved a new award of $500.00 to be given in the name of Robert E. Gunn. This award will be given to an outstanding student in one of the N.A.T.A. approved curriculum programs. The student must have been a student member of the National Athletic Trainers Association for two years and must have completed his junior year and must have no other financial aid. This will be an annual commitment by the Association.

The Cramer Products, Inc., have also become involved with an annual commitment toward the William E. Newell Scholarship.

Nominations for awards will be restricted to students who are N.A.T.A. members and must be nominated by a certified athletic trainer supervisor.

At the present time there are no scholarship awards available to secondary or high school students. Applications may be received by writing to the Committee on Grants and Scholarships: National Athletic Trainers Association, 3315 South Street, Lafayette, Indiana 47904. Deadline for the above scholarships and awards in April 15, 1976.

DISTRICT 4 MEETING

District No. 4 Meeting: The 1976 Great Lakes Athletic Trainers Association (District No. 4) Winter Meeting will be March, 19, 20, 1976. The site is the Admiral's Convention Center and Holiday Inn in Merrillville, Indiana. Mr. Rod Moore II, Valparaiso University, is the General Chairman and Mr. Robert Behnke, Indiana State Univ., is the Program Chairman.

CERTIFICATION INFORMATION

Persons wishing to be certified as an Athletic Trainer by the N.A.T.A. must fully qualify under the Procedures for Certification prior to taking the Certification Examination.

The examination is given four times yearly. It is administered one day prior to the annual convention in June at the convention site; the third Sunday of January (on a regional basis), the second Sunday of March (on a regional basis), and in early August, (applications are processed at the same time as for the annual convention).

Persons desiring to take the examination may obtain application materials from N.A.T.A. Board of Certification, Post Office Box X18, Ann Arbor, Mich. 48107 provided the individual meets the membership requirement. The application must be requested in writing ninety (90) days prior to the date of the examination. No applications will be furnished to the applicants less than sixty (60) days prior to the examination date in order to assure that the application deadline of six weeks prior to the examination may be met. All August applications must be processed with the same deadlines as for the June annual convention site.

If further information is required, contact Lindsay McLean, Chairman, NATA Board of Certification, 1000 S. State Street, Ann Arbor, Michigan, 48104.

H.E.W. STUDY INFORMATION

The HEW Study of Athletic Injuries and Deaths, mandated by PI 93-380, Sect 826, (The "Forsythe Amendment") is underway. HEW has contracted with Penn State University to collect the survey data and assist in its preparation for analysis and interpretation. This will be done by the staff of the National Athletic Injury-Illness Reporting System (NAIRS) which is housed at Penn State. Nearly 4,000 schools and colleges are in the sample. This survey, however, should not be confused with the NAIRS system.

The law requires HEW to follow injuries occurring in intramurals and physical education as well as varsity and club sports for one academic...
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NATIONAL ATHLETIC TRAINERS ASSOCIATION

EDUCATIONAL PROGRAMS LEADING TO PROFESSIONAL CERTIFICATION IN ATHLETIC TRAINING

Programs listed here are approved by the National Athletic Trainers Association. With the exception of one undergraduate program, all are coeducational. For detailed information, write to the program director whose name is given in parenthesis in the listing. Two basic plans of education for athletic training are listed in the following key:

(1) Bachelor's degree level curriculum
(2) Master's degree level curriculum
(3) Accepts male students only

ARIZONA

UNIVERSITY OF ARIZONA (2)
Department of Physical Education
Tucson, Arizona 85721 (Gary Delorce)

ARIZONA STATE UNIVERSITY (1)
Department of Health, Physical Education & Recreation, Tempe, Arizona 85281 (Tom Young)

CALIFORNIA

CALIFORNIA STATE UNIVERSITY, FULLERTON (1)
Department of Health, Physical Education & Recreation, Fullerton, California 92634 (Jerry Lloyd)

CALIFORNIA STATE UNIVERSITY, LONG BEACH (1)
Department of Physical Education, Long Beach, California 90840 (Dr. Daniel Areheim)

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE (1)
Department of Physical Education & Athletics, Northridge, California 91324 (Chuck Walsott)

omega

DELAWARE

UNIVERSITY OF DELAWARE (1)
Department of Physical Education, Newark, Delaware 19711 (Dr. C. Roy Rylander)

ILLINOIS

EASTERN ILLINOIS UNIVERSITY (1)
School of Health, Physical Education & Recreation, Charleston, Illinois 61920 (Dennis Aten)

WESTERN ILLINOIS UNIVERSITY (1)
College of Health, Physical Education & Recreation, Macomb, Illinois 61455 (Roland E. LaRue)

INDIANA

BALL STATE UNIVERSITY (1)
Department of Men's Physical Education, Muncie, Indiana 47306 (Ronald Sendre)

INDIANA UNIVERSITY (1)
School of Health, Physical Education & Recreation, Terre Haute, Indiana 47809 (Robert Young or Sam Newberg)

INDIANA UNIVERSITY (1,2)
School of Health, Physical Education & Recreation, Terre Haute, Indiana 47809 (Mel Birk-stedall)

PURDUE UNIVERSITY (1)
Athletic Department, Mackey Arena, West Lafayette, Indiana 47907 (William E. Newell)

IOWA

UNIVERSITY OF IOWA (1)
Department of Physical Education for Men, Iowa City, Iowa 52240 (Jerry Lloyd)

KENTUCKY

EASTERN KENTUCKY UNIVERSITY (1)
School of Health, Physical Education & Recreation, Richmond, Kentucky 40475 (Ken Murray)

LOUISIANA

LOUISIANA STATE UNIVERSITY (1)
Department of Health, Physical Education & Recreation, Baton Rouge, Louisiana 70803 (Marty Broussard)

THANKS

The NATA would like to thank Otho Davis and Karl Klein for the initial contributions to the Association Endowment Fund.

NATA ENDORSED PROFESSIONAL ATHLETIC TRAINING PROGRAMS

Dates: December 5, 6 and 7, 1975

Location: Sheraton Boston, 39 Dalton Street, Prudential Center, Boston, Massachusetts (Northeastern University—Host)

Sponsor: John G. Baynes, A.T.C., Head Athletic Trainer, Northeastern University, Boston, Massachusetts 02115

ATHLETIC TRAINING - Volume 10 - Number 3 - September 1975
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