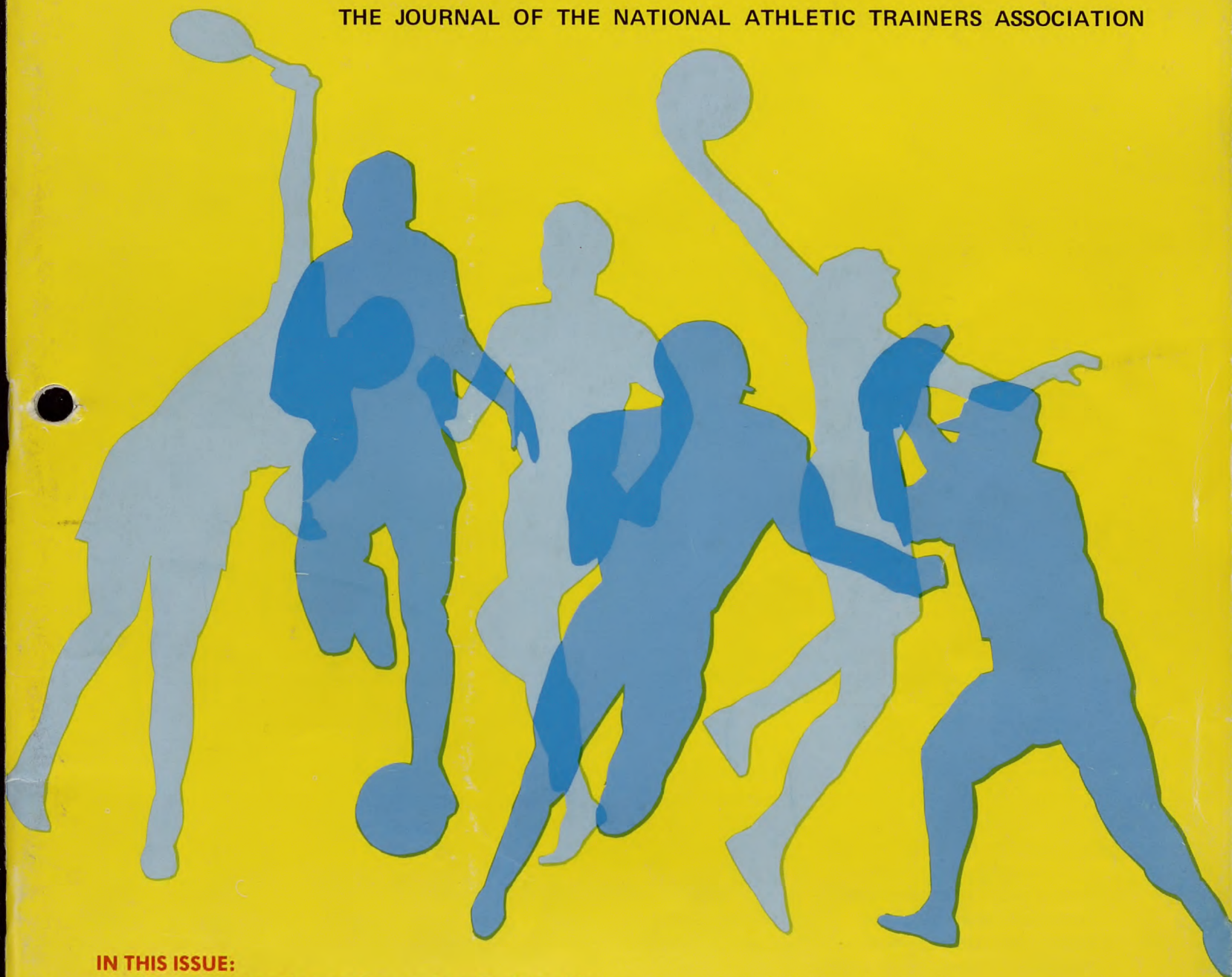




ATHLETIC TRAINING

THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION



IN THIS ISSUE:

The 1976 Schering Symposium on Low Back Problems:

Disc Disease, Spondylolysis, and Spondylolsthesis

Turf-Related Injuries in College Football and Soccer:

A Preliminary Report

Get the Head Out of Football

The Modality of Therapeutic Exercise: Objectives and Principles

VOLUME TWELVE

NUMBER ONE

SPRING 1977



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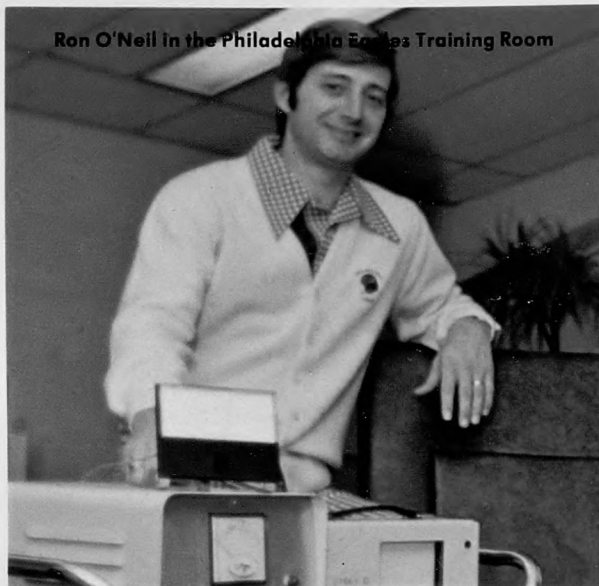
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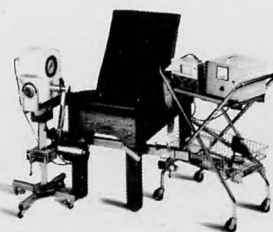
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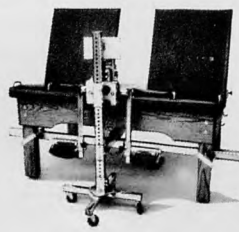
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ATHLETIC TRAINING

The Journal of the National Athletic Trainers Association

VOLUME TWELVE

NUMBER ONE

SPRING 1977

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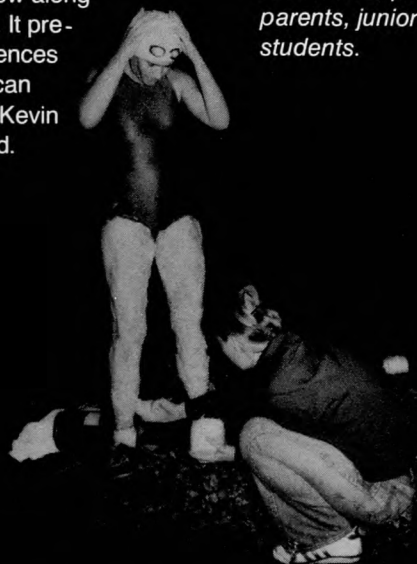
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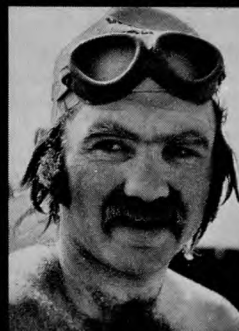
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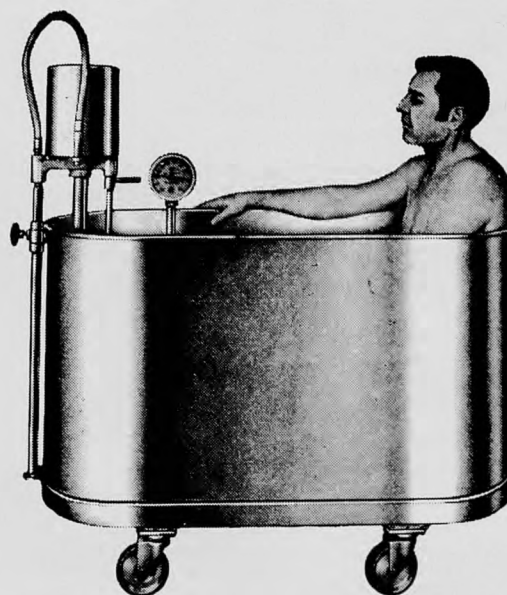
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Calendar of Events

by Jeff Fair
Oklahoma State University

APRIL 1977

25-28 - 24th American College of Sports Medicine Annual Meeting. Chicago, Illinois. Contact: American College of Sports Medicine, 1440 Monroe Street, 3008 Stadium, Madison, Wisconsin, 53706.

6-10 - Athletic Injuries Workshop. Southeastern Oklahoma State University, Durant, Oklahoma. Contact Dr. Don Parham, Director of Athletics, Southeastern Oklahoma State University, Durant, Oklahoma, 74701.

22-25 - The Fourth Annual Seminar "The Art & Science of Sports Medicine-1977" at the University of Virginia. Contact Clifford E. Brubaker, Ph.D., Memorial Gym, University of Virginia, Charlottesville, VA. 22903.

MAY 1977

13-14 - Eighth annual ECU Sports Medicine Conference. Contact Rod Compton, Sports Medicine Division, East Carolina University, Greenville, N.C. 27834.

12-15 - 28th Annual Meeting of the National Athletic Trainers Association. Dearborn, Michigan. Contact Otho Davis, Philadelphia Eagles, Veterans Stadium, Philadelphia, PA 19148.

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

JUNE 1977

5-10 - 4th International Congress on Swimming Medicine. Stockholm, Sweden. Contact: 4th International Congress on Swimming Medicine, Svenska Simforbundet, Box 6506, S-113 83 Stockholm, Sweden.

20-24 - Sports Medicine for Physical Therapists and Team Physicians: Insight to Athletic Training. Boston, Massachusetts. Contact William T. Bates, 254 Commonwealth Avenue, Chestnut Hill, Massachusetts, 02167.

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Letters to the Editor

Dear Editor:

I am sure that this is not a new or earth shattering statement, but something that needs to be said periodically.

I have participated in athletic training since starting as a high school trainer and began as a member of the NATA as a student and progressed to Active and Certified.

Much of my concern has stemmed out of my recent and on going experience as Co-Chairman of the Committee on California Licensure for Trainers. As one begins to delve into the many facets of the democratic legislative process, I have found many areas that, not the leadership of NATA, but the membership should be participating in to project and promote the profession of athletic training. Athletic training as a profession has come a long way in performance and recognition as a paramedical profession.

Certification has insured a quality control and a continuing standard of professionalism and common identity.

One constantly hears criticism the "association" doesn't do anything for me so why should I get involved. The National Organization is the organization who is responsible originally for the formalization of the field of athletic training as a profession. It's interests have traditionally been the development and propagation of the profession

nationally and lend direction to the local areas.

Realistically though, the National Organization can only advise and recommend to the local counties, states, etc., what happens at the local level is really related to what is effectuated by those trainers in each area.

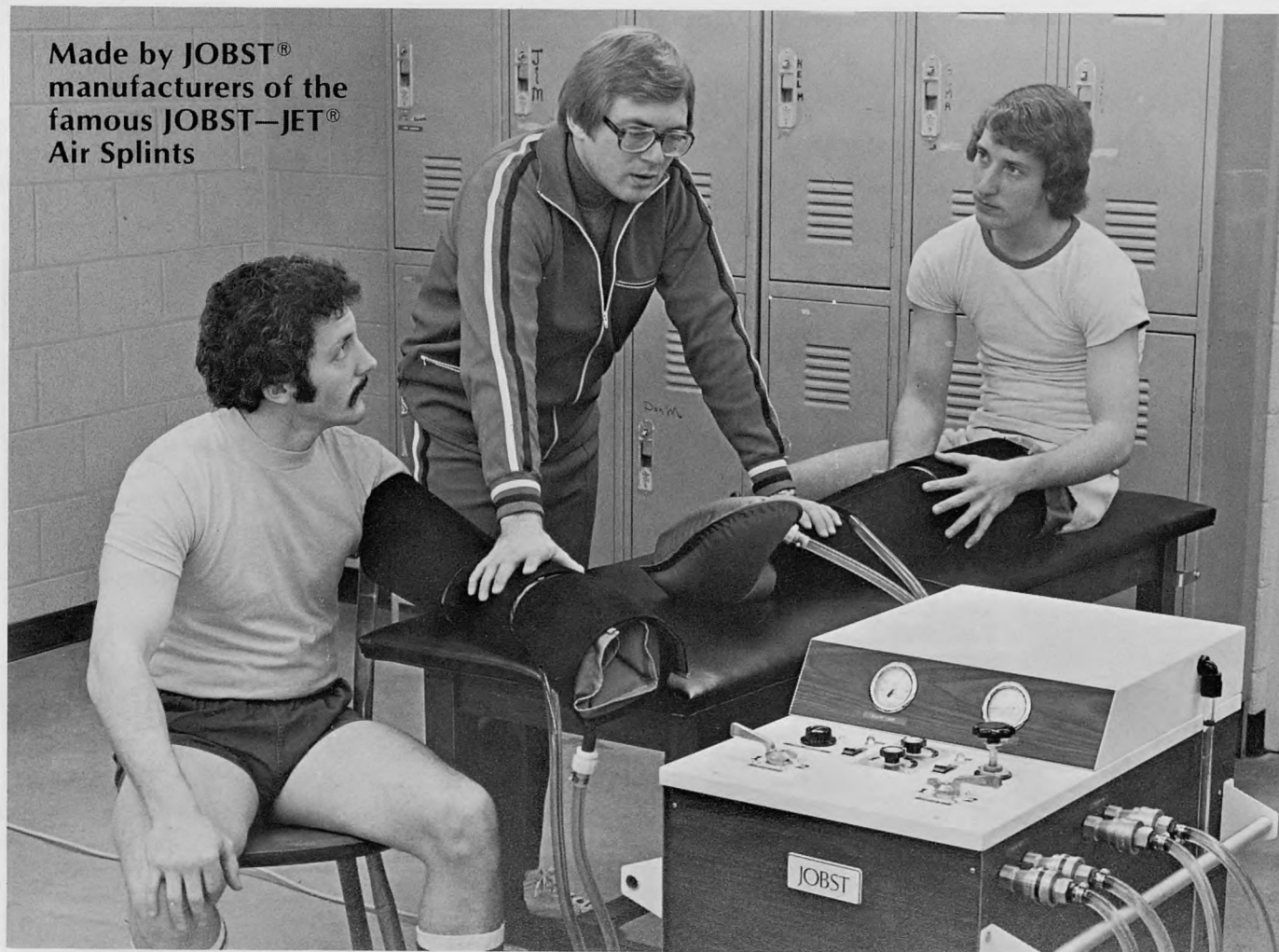
The licensure initiative that is now being undertaken in each state will not succeed or fail on the prestige of the National Athletic Trainers Association or the Certified Athletic Trainer, but on an unified commitment of support and activity by the membership. That does not mean just writing of a few letters or talking to a few people, that of course is important, but giving of ones own personal time and energy to seek positions of influence that will afford the offering of input to various areas involved in the decision making areas affecting athletic training. This specifically means local medical societies, interscholastic and intercollegiate bodies in each district and county, as well as state agencies affecting athletics and the health care of athletes.

This does not apply just to legislation, it applies to all areas of vital interest to athletic trainers.

Well, by our on going involvement in athletics, promote the "athletic philosophy" of sportsmanship in team and individual sports and now must,

(Continued on page 46)

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Current Literature

by Ed Christman, A.T.,C.
The College of William and Mary

- "Ankle Injury Mechanism and Treatment Guides," Floriani, L. *The Physician and Sportsmedicine*, 4015 West 56th Street, Minneapolis, Minnesota 55435. 4:72, September, 1972.
- "Ballet Dancers' Injuries Pose Sportsmedicine Challenge," A Round Table, *The Physician and Sportsmedicine*. 4:44, November, 1976.
- "Current Developments in Exercise Structure," Almekinder, E. and LaPoint, J. *Scholastic Coach*, 50 West 44th Street, New York, New York 10036. 46:54, November, 1976.
- "Dance Your Way into Condition," Lehmen, L. and Beuter, R. *Scholastic Coach*. 46:84, October, 1976.
- "Elbow Problems in the Adolescent Athlete," DeHaven, K. *Cleveland Clinic Quarterly*, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106. 42(4): 297-302, Winter, 1975.
- "Epiphyseal Injuries in Athletes," Collins, R. *Cleveland Clinic Quarterly*, 42(4):285-295, Winter, 1975.
- "Head and Neck Injuries in Football," Wirtz, P. *Journal of the Iowa Medical Society*, 1001 Grand Avenue, West Des Moines, Iowa 50265. 66(3): 89, March, 1976.
- "Importance of Speed in Exercise," Counsilman, J. *Scholastic Coach*. 46:94, October, 1976.
- "Isolated Tear of the Anterior Cruciate Ligament: 5 Year Follow-up Study," Feagin, J. and Curl, W. *The American Journal of Sports Medicine*, 428 East Preston Street, Baltimore, Maryland 21202. 4:95, May-June, 1976.
- "Lateral Collateral Ligament Ankle Injuries in Young Athletic Individuals," Gordon, S. et al. *Journal of Trauma*, 428 East Preston Street, Baltimore, Maryland 21202. 16(3):225-231, March, 1976.
- "New Aspects in the Diagnosis of Lateral Ankle Sprains," Lindstrand, A. *Orthopedic Clinics of North America*, W.B. Saunders Co., West Washington Square, Philadelphia, Pa. 19105. 7(1):247-9, January, 1976.
- "Prevent Arm Injuries with Stretching Exercises," Weiss, D. *Athletic Journal*, 1719 Howard Street, Evanston, Illinois 60202. 57:50, December, 1976.
- "Prevention of Ankle Sprains," McCluskey, G., Blackburn, A., and Lewis, T. *The American Journal of Sports Medicine*. 4:151, July-August, 1976.
- "Reconditioning Following Athletic Injuries," Graham, G. *The Physician and Sportsmedicine*. 4:125, September, 1976.
- "Rehabilitation Emphasis Should Be On Exercise," Nelsen, C. *The Physician and Sportsmedicine*. 4:93, September, 1976.
- "Self-actualization and Self-concept among Athletes," Ibrahim, H. et al. *Research Quarterly of the American Association for Health and Physical Education*, 1201 16th Street N.W., Washington, D.C. 20036 47(1): 126-33, March, 1976.
- "Sports Medical Advisor," Key, J. *Athletic Journal*. 57:20, December, 1976.
- "Stress Fracture Affects Variety of Exercisers," Fordham, S. *The Physician and Sportsmedicine*. 4:79, November, 1976.
- "Stretching to Shorten the Injury List," Jenkins, C. *Athletic Journal*, 57:58, November, 1976.
- "Tennis Elbow," Steiner, C. *Journal of the American Osteopathic Association*, Washington, D.C. 75(6): 575-81, February, 1976.
- "The Modern Golf Swing and Stress Syndromes," Stover, C., Wiren, G., and Topaz, S. *The Physician and Sportsmedicine*. 4:73, November, 1976.
- "The Modified Bristow Procedure for Recurrent Dislocation of the Shoulder," Lombardo, S. et al. *American Journal of Bone and Joint Surgery*, 10 Shattuck Street, Boston, Mass. 02115. 58(2):256-61, March, 1976.
- "The Prevention and Treatment of Ankle Injuries," Glick, J., Gordon, R., and Nishimoto, D. *The American Journal of Sports Medicine*. 4:136, July-August, 1976.
- "The Unstable Knee of the Young Athlete," Jones, K. *Journal of the Arkansas Medical Society*, Box 1208, Fort Smith, Arkansas 72901. 72(11):461-3, April, 1976.
- "Time Motion and Physiological Assessments of Ice Hockey Performance," Green, H. et al. *Journal of Applied Physiology*, 9650 Rockville Pike, Bethesda, Maryland 21104. 40(20): 159-63, February, 1976.
- "Treatment of Ankle Sprains by Simultaneous Use of Intermittent Compression and Ice Packs," Starkey, J. *The American Journal of Sports Medicine*. 4:142, July-August, 1976.
- "Treatment of Myositis Ossificans Traumatica in Athletes," Lipscomb, A., Thomas, E., and Johnston, R. *The American Journal of Sports Medicine*. 4:111, May-June, 1976.
- "Unusual Fractures Caused by Football Helmets Impact," Torg, J. *The Physician and Sportsmedicine*. 4:73, November, 1976.
- "Variable Resistance Vs Standard Resistance Training," Ariel, G. *Scholastic Coach*. 46:68, December, 1976.
- "What Do You Feed the Hungry Girl? Darden, E. *Scholastic Coach*. 46:47, December, 1976. ●

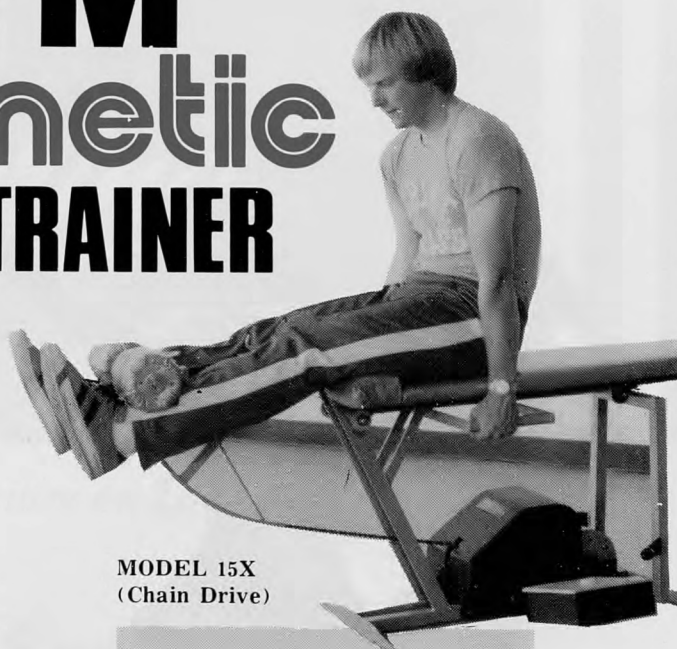
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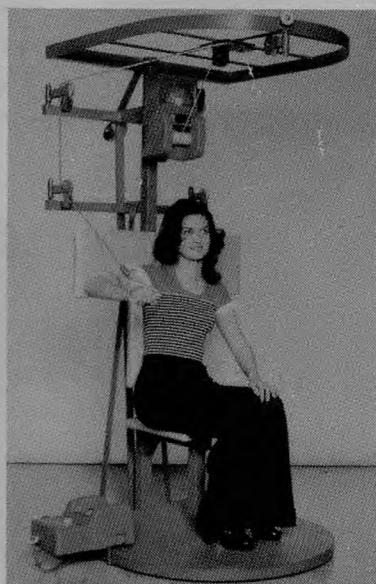


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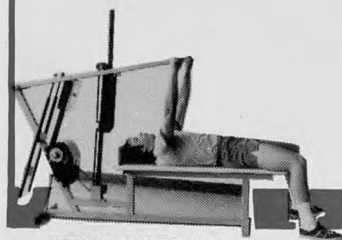


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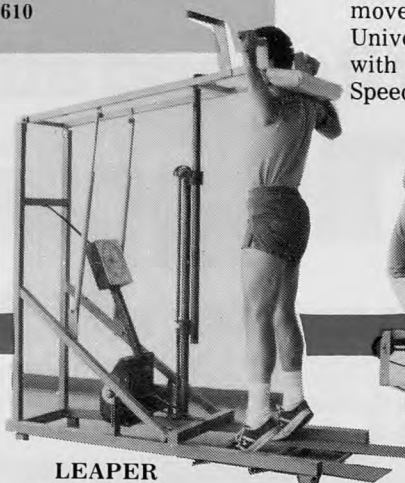
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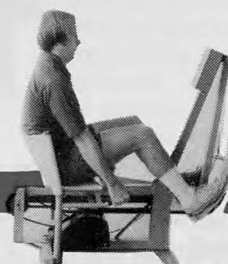
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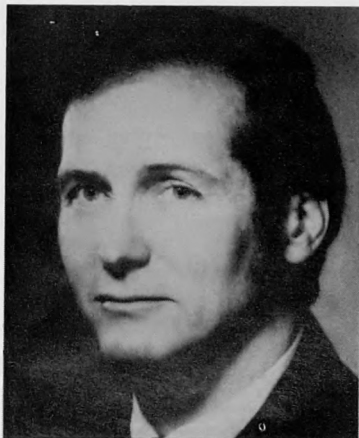
Disc Disease, Spondylolysis **AND** **Spondylolisthesis**

*Diagnosis and management of three relatively common
and potentially chronic disorders of the low back*

by

Robert E. Leach, M.D.
Presented June 13, 1976
Sheraton-Boston Hotel
Boston, Massachusetts

Edited by
Rod Compton, A.T., C.
East Carolina University



Robert E. Leach is currently chairman and professor of the Dept. of Orthopedic Surgery at Boston University Medical School, chairman of the Dept. of Orthopedic Surgery, University Hospital; and Director of Orthopedic Service at Boston City Hospital. Dr. Leach and his family reside in Weston, Massachusetts.

The majority of cases of low back pain in the athlete are not caused by bony or disc structural defects but by contusions, acute strains and chronic stresses. In the healthy athlete, male or female, these conditions are handled well by a combination of rest, heat, judicious exercises and correction of postural faults, such as increased lumbar lordosis. In more rare instances, however, the symptomatic back relates to a distinct anatomical entity such as spondylolisthesis, acute disc herniation or even degenerative disc disease. This paper

will discuss the diagnosis, treatment and prognosis for the athlete suffering from any of these three conditions.

Spondylolisthesis

In the general population, low back pain appears to be as ubiquitous as the common cold, and remains a common complaint amongst teenagers playing sports. In any instance, when low back pain, sufficient to interfere with the ability to play sports, occurs, particularly on a repetitive basis, a careful history, physical examination and x-ray study is indicated. Most times, x-ray studies of teenagers with back pain are relatively unrewarding although such defects as spina bifida and sacralization of a transverse process may be seen. These are seldom the actual cause of low back pain. The most common x-ray finding related to low back pain in a young athlete is spondylolysis or spondylolisthesis. Writers variously estimate that the occurrence of spondylolisthesis in the adult population of the United States is somewhere between three and five percent. Although most of these people with spondylolisthesis do not have significant back pain, the incidence of symptomatic low back pain in people with spondylolisthesis is certainly increased over the general population. Spondylolysis (Fig. I) is a defect in the pars interarticularis of the vertebra which, if it is bilateral, may allow that vertebra to slip forward on the vertebra or sacrum below. The condition of slipping is spondylolisthesis (Fig. II).

A typical history of a young athlete with spondylolisthesis will often start at age 15 or 16 when the athlete begins to have low back pain associated with increased activity. Virtually any athletic endeavor can cause low back pain but it is particularly prone to occur in those heavy exercise or contact sports such as football, hockey, gymnastics, wrestling etc. Pain, usually felt in the low back, often radiates into both buttocks and upper thighs. This appearance of radiating pain into both thighs with recurrent episodes during periods of increased activity is typical of spondylolisthesis. The athlete will often volunteer that, with rest, pain diminishes only to return again with activity. In some instances, pain stays tolerable and competition can be continued, but in other cases performance suffers and eventually even the competitive athlete will be disinclined to play.

The typical physical examination may include an increased lumbar lor-



Figure I: Arrow points to defect in the pars interarticularis. The condition is called spondylolysis.

dosis sometimes with a step off palpable in the lower lumbar spine but many times no significant physical defect is noted. Forward flexion may be limited and the normal reversal of the lumbar lordosis in flexion does not occur. Tight hamstrings are common with straight leg raising producing pain in the thigh and the back. This movement is restricted both by pain and the tight hamstrings. Reflex loss is unusual in the young athlete.

Roentgenographic examination always includes an AP, lateral, both obliques and a standing AP. The defect in the pars interarticularis is seen best on the oblique films. The forward slipping of the vertebra

shows on the lateral, particularly the standing film. The defect is most common in the L5 vertebra but occurs at L4.

Non-operative treatment includes decreased activities and exercises. Most authorities prefer Williams flexion exercises but some advise extension. This author's preference is for the flexion exercises started gently and increasing as symptoms decrease. In many instances, this gives relief of symptoms only to have a recurrence when the athlete returns to playing sports. The decision then has to be made as to whether or not the affected person is going to change his style of life or whether surgery may be considered the con-



Figure II: Arrow shows slipping forward of L5 vertebra on the sacrum. This is spondylolisthesis. The disc space is also narrowed.

servative approach. Personal experience has indicated that low back pain and thigh pain occurring in teenagers and related to spondylolisthesis, carries a poor prognosis in regard to future sports activities. Many adults, who have low back pain and are found to have spondylolisthesis, can be carried along effectively with exercises and may return successfully to full time athletic activities. The younger athlete finds it harder to decrease his activities and is more inclined to have repetitive episodes of back and thigh pain. For that reason, after a period of conservative treatment, usually encompassing a year, if significant progress is not being made, the

possibilities of surgery are discussed with the athlete and his family.

When considering surgery, one must raise the question as to whether or not the athlete will be able to go back to contact or violent athletics such as football, wrestling or gymnastics. This obviously requires a stable spine with no impingement upon spinal canal or nerve roots. The question is whether to perform a spinal fusion from the involved segment to the sacrum, usually on the transverse processes although in some instances an "H" graft going from L4 to the sacrum is used, or whether the fusion should be combined with a laminectomy (removal) of the loose pars interarticularis. To

some event, it depends upon the symptomatology of the patient, the physical findings, and the future needs. If there are definite signs of nerve root impingement, and in particular if a myelogram shows a defect at the area of spondylolisthesis, this author would prefer to decompress by removing the loose lamina and to do a fusion from the transverse process of the involved vertebra to the sacrum. Although the operation is more difficult and longer, it has the advantage of being sure that there is no nerve root impingement and when combined with a successful fusion, there should be a good chance of allowing the patient to return to full activities.

With a transverse process fusion, time in the hospital is little more than with a laminectomy. In most instances, patients are allowed out of bed on the 10th day and go home somewhere between 14 and 16 days post-operatively. Although it is this author's custom to use a Norton-Brown back brace for 4 months, many surgeons do not feel this is necessary and simply try to keep the patient either standing or lying down and have them sit as little as possible so as to not flex the lumbosacral spine. The fusion mass is usually solid at about 6 months and a gradual resumption of normal activities starts with back and abdominal exercises. The patient is encouraged to take long walks and gradually progress through such activities as swimming, bicycling and finally running before they take up contact sports. In most instances, when pain has disappeared and the fusion mass is proven to be solid, both by routine and bending films, the patient is allowed to return to all sports activities.

If the surgeon should decide to only remove the loose lamina, the Gill procedure, there is the possibility of further slip of the vertebra. This author would be leary of having athletes return to full time activities, particularly contact sports with only a Gill procedure as opposed to fusion and laminectomy.

Acute Disc Herniation

In the teenage athlete with low back pain plus radiating leg pain, one would more likely think of a spondylolisthesis than an acute herniated disc as the cause. However, by the time people are in their early 20's, changes occur in the ground substance of the disc which put even the young athlete at risk for a disc herniation. Disc ruptures are certainly more common in the 30's and 40's but are not a rare occurrence even in the

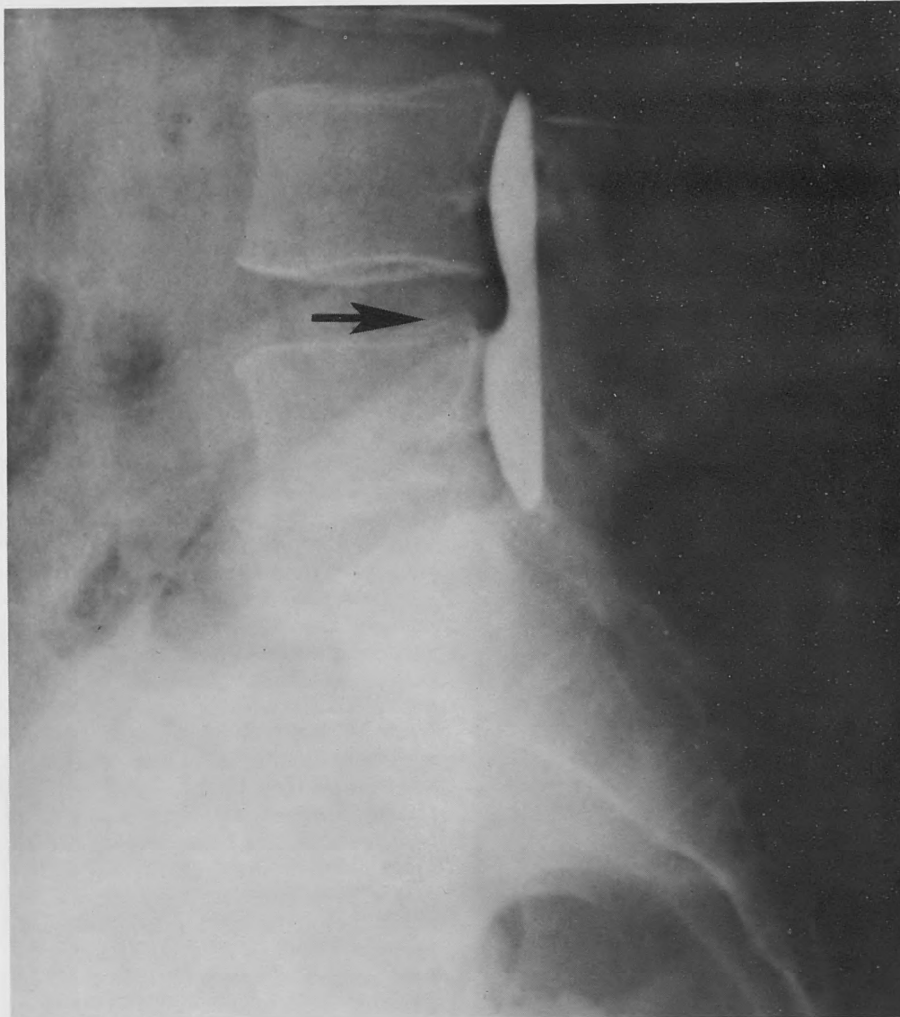
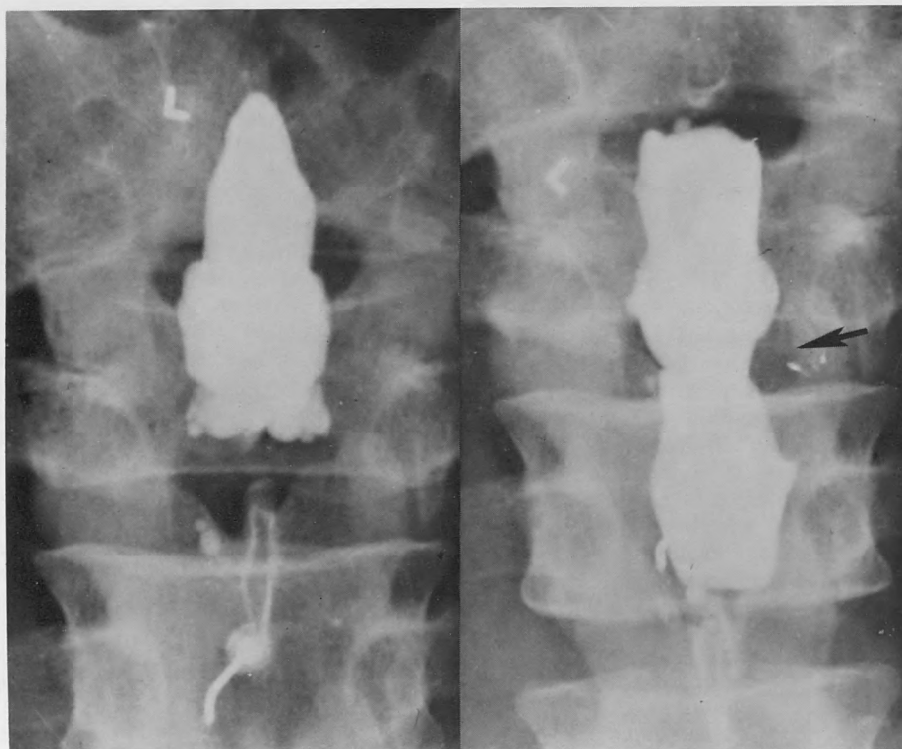


Figure III: Arrow points to defect in the myelogram at L4-5. Diagnosis; herniated disc.

Figure IV: Arrow points to defect in the myelogram with pressure on the nerve root. Diagnosis, herniated disc.



20's. In a typical case history, there will be one acute back pain episode followed by leg pain, often precipitated by some type of athletic or heavy lifting activity. The clinical history, the same as for an older patient, usually associates back pain with posterior leg pain radiating down the thigh even into the calf and foot. When this picture is combined with decreased range of back motion, lack of reversal of the lumbar lordosis in forward flexion, positive straight leg raising tests, plus reflex loss or muscle weakness and sensory loss, the diagnosis of a herniated disc is obvious. In a young person, disc disease may be missed simply because one does not think of it.

Once the diagnosis of a herniated nucleous pulposus has been made, treatment mandates marked decrease of activities, possibly bed rest. When pain relents, a program of gradual Williams flexion exercises can begin. As long as pain decreases and the patient improves, gradual resumption of activity can be started. Sometimes the patient will go back to pre-injury status and resume even heavy activities or sports. In other instances, this may not be possible and a change of life style will be mandatory.

If pain does not relent with bed rest, confirmation of the herniated disc is needed either by myelogram or electromyogram. With no improvement secondary to rest plus a positive myelogram, (Fig. III, IV) removal of the diseased herniated disc seems conservative. In those patients who can get by with decreased activity but every time they increase activity have recurrent back and leg symptoms, it may be that removal of the diseased disc is again conservative treatment. The decision really is up to the patient. If he is comfortable and does not mind giving up activities, then there is no reason to remove the disc. If however every time he returns to those activities he either has to perform or wants to perform and has acute disc symptoms, then surgery should be offered.

The question as to whether or not to do a simple disc removal or disc plus spinal fusion has not been definitely answered. It has been this author's practice with a true disc herniation to remove the disc without doing a fusion and to gradually rehabilitate the patient to return to full activity. They may be able to return to previous status by keeping their weight down and strengthening their abdominal muscles. After several years, some patients may have chronic back pain increased with

activity and fatigue. If x-rays show signs of degenerative changes of the affected disc, for these patients to play athletics a fusion of the involved segment may be necessary.

Degenerative Disc Disease

The above sequence of events leads to degenerative disc disease, the third type of back pain which may necessitate aggressive treatment. Degenerative disc disease differs from an acute disc herniation in that it affects people in an older age range and causes more back than leg pain. It may be seen as the sequela to an acute disc treated conservatively or operatively and later manifests itself with x-ray changes of narrowing of the disc space (Fig. V) plus back pain. More commonly, it comes on de

noveau with recurring attacks of low back pain often associated with increased activity. Certain sports and activities may aggravate the condition. Again, contact and more active sports, all have the potential for causing back pain, particularly when there is mechanical instability secondary to disc degeneration. However, non-contact sports such as bowling or tennis (particularly with serving in which the back may be arched) can also cause increased stress on the low back. Physical findings depend upon the stage in which the athlete finds himself. If he is in an acute stage, there may be back spasm, decreased range of motion, and inability to reverse the lumbar lordosis. Conversely, the back examination may be completely negative despite long term chronic back pain.

By definition, degenerative disc disease includes narrowing of the disc space. When early degeneration starts, the disc space may not initially appear narrow but over a period of years will gradually become thin. This may be associated with minor subluxation at the facet joints and degenerative changes at the facets plus osteophytic changes at the vertebral bodies themselves. Since degeneration of the disc likely occurs in people beyond the age of 30 usually in the 40's and 50's, many people may get along with conservative measures and by changing their athletic activities.

In some instances, they will not and there will be some people who will benefit from fusion of the involved disc space. As people become more active for more years and athletes in their 30's are seen playing even professional contact sports for a longer period of time, some of these athletes will have degenerative disc disease which may necessitate fusion to allow continuation of these sports. Successful rehabilitation after spinal fusion of such hockey players as Gilbert and Ratelle, shows that a successfully performed fusion can relieve pain and allow heavy contact sports.

In all these instances, surgery is performed with the concept of allowing people to return to their maximal physical activity. This can be done only if there is an excellent rehabilitation program after the surgery. No surgical approach will be successful without a good program of exercises to recondition both the abdominal and the back muscles. Following any type of fusion procedure, it's likely to be between 9 and 12 months before the resumption of hard physical activities. Simple disc removal may allow a much quicker return to activities within a 3 to 4 month period of time.

Summary

The majority of cases of low back pain in the athlete are not due to structural deformities but are probably postural in nature and aggravated by heavy activities. Exercises, particularly Williams flexion exercises, take care of the majority of problems. Certain structural defects such as spondylolisthesis, disc herniation or degenerative disc disease, do occur and may require definitive treatment including surgery. In the majority of instances, it is possible to rehabilitate even young athletes so that they are able to go back to enjoying recreational and competitive sports.●



Figure V: Arrow points to narrowed disc space between L5 and the sacrum. Diagnosis; degenerative disc disease. The disc above is normal.

Potpourri

By Dennis Aten, A.T., C.
Eastern Illinois University

Functional Rehabilitation

An article by Yamamoto *et al* in the November-December 1975 issue of *The Journal of Sports Medicine* discusses an additional or supplemental approach to post injury rehabilitation. The Yamaoto article deals with knee rehabilitation; however, the principles can be applied to most joint problems. The idea supplements the standard PRE with general agility activities. According to the authors this program can improve dynamic stability (most PRE programs are aimed at static stability), enhance surgical results, bolster confidence of movement in the athlete, and reduce the number of reinjuries.

Sports Medicine Articles from USSR

The July 1976 issue of the Sports Medicine Bulletin has a list of Sports Medicine articles from Russia. ACSM members can get reprints of these articles (in Russian) by contracting the editorial office of the Sports Medicine Bulletin, 1440 Monroe St., 3008 Stadium, ACSM, Madison, Wisconsin 53706.

More on Weight Loss in Wrestling

The July 1976 issue of the Sports Medicine Bulletin has reported the official position of the American College of Sports Medicine regarding the potential hazards of "making weight" in wrestling. They believe that these hazards can be eliminated if state and national organizations will:

1. Assess the body composition of each wrestler several weeks in advance of the competitive season.

Individuals with a fat content less than five percent of their certified body weight should receive medical clearance before being allowed to compete.

2. Emphasize the fact that the daily caloric requirements of wrestlers should be obtained from a balance diet and determined on the basis of age, body surface area, growth and physical activity levels. The minimal caloric needs of wrestlers in high schools and colleges will range from 1200 to 2400 KCal/day; therefore, it is the responsibility of coaches, school officials, physicians and parents to discourage wrestlers from securing less than their minimal needs without prior medical approval.
3. Discourage the practice of fluid deprivation and dehydrations. This can be accomplished by:
 - a. Educating the coaches and wrestlers on the physiological consequences and medical complications that can occur as a result of these practices.
 - b. Prohibiting the single or combine use of rubber suits, steam rooms, hot boxes, saunas, laxatives, and diuretics to "make weight."
 - c. Scheduling weigh-ins just prior to competition.
 - d. Scheduling more official weigh-ins between team matches.
4. Permit more participants/team to compete in those weight classes (119-145 pounds) which have the highest percentages of wrestlers certified for competition.
5. Standardize regulations concerning the eligibility rules at championship tournaments so that individuals can only participate in those weight classes in which they had the highest frequencies of matches throughout the season.

6. Encourage local and county organizations to systemically collect data on the hydration state of wrestlers and its relationship to growth and development.

Chewing Gum, Good or Bad?

Since dentures and other foreign, loose bodies in the mouth are of great concern in athletics as a possible agent for blocking an airway, it is amazing how many athletic teams still provide chewing gum for their players prior to competition. My own philosophy dictates that I tell athletes not to chew gum during competition and the reason, and I do not supply it for them. I would suggest that we all review our services, especially where they concern traditional practices, etc.

Susceptibility of Women Athletes to Injury

Haycock and Gillette collaborated on a study to separate fact from fiction regarding the susceptibility of women athletes to injury. The initial data were collected from the athletic departments of collegiate institutions, and the final material was assembled from certified athletic trainers at these institutions, plus an extensive computer search of applicable publications. The collected statistical data were tabulated, and a written commentary was evaluated by the authors. It was established that injuries sustained by female athletes, aside from those related to

(Continued on page 20)



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different biological structures, were essentially no different than those of men, nor are well-trained women athletes more prone to injury. Ankle and knee injuries are most frequent, and women sustain many contusions, sprains, and shin splints. It is anticipated that the overall number of injuries will decrease as better coaches and trainers become available to women athletes.

(JAMA 236:163-165, 1976)

Medical Esteem

Results of a recent Gallup poll rating the "honesty and ethical standards" of persons practicing various professions show that doctors of medicine ranked highest in public esteem with 55 percent of persons polled putting MDs at the top of the list. MDs fared better than engineers, college teachers, journalists, lawyers

and government and labor leaders. A similar poll taken among college students ranked MDs with 66 percent, second in confidence only to college teachers.

Physical Fitness

The *Physical Fitness Research Digest* recently summarized physical fitness and its relationship to various aspects of society. Two of these aspects should be of interest to athletic trainers.

1. *Exercise and Fat Reduction* (*Digest*, April 1975). The internationally renowned nutritionist, Jean Mayer, has effectively supported the concept that physical inactivity is the single most important factor explaining the increasing frequency of overweight people in modern western societies (27). The studies reviewed in the *Digest* demonstrate that intensive physical conditioning causes a depletion of excess fat and an increase in lean resulted in no appreciable change in body weight, but body composition did change with a decrease in body fat and a balancing increase in muscular tissue. Obviously, other factors are important in fat reduction, especially diet; however, proper exercise regimens appropriately applied are vital.

2. *Motor/Athletic Abilities*. Little doubt exists that the appropriate kind and amount of exercise, consistently employed, will develop muscular strength and endurance, body flexibility, and circulatory-respiratory endurance. In fact, properly directed exercise is the only means of acquiring the ability to engage in tasks demanding strong and sustained physical efforts. Studies showing the importance of strength development in motor/sports improvement were reviewed in the October 1974 *Digest*. Athletes today in all sports, especially for boys but increasingly so for girls, engage in weight training to improve overall body strength and, particularly, to strengthen muscles primarily under stress in their respective sports. Fear of muscle-bound effects from weight training may be laid to rest: studies predominantly show that speed of movement may be enhanced rather than retarded as a consequence of strength development.●

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Tips from the Field

Shoulder Pads in Lacrosse

By Lynn Wolfe, A.T.,C.
Head Trainer
University of Maryland
Baltimore County

Edited by
Ronnie Barnes, A.T.,C.
Assistant Trainer
East Carolina University

How important is it to wear shoulder pads in lacrosse? Anything that will prevent injuries is important. The shoulder pads available for lacrosse today are not that effective. They fit too loose on the athlete's shoulder and are extremely uncomfortable. Given a choice, most athletes would not wear the shoulder pad, thus increasing the potential of an injury.

This author for the past four years

has worked on developing several types of shoulder pads. These pads have proved most effective. The important areas to be considered while developing a more effective shoulder pad that players will take advantage of should include the following:

- a. Light Weight
- b. Flexibility
- c. Form Fitting
- d. Protection

The problem of weight and

flexibility can be overcome by the use principally of foam rubber. The side straps are actually the key to the composition of the shoulder pads. They make the pad form fitting and allow movement by the upper body without slipping or restricting the arms when passing or shooting.

Ironically protection has been placed last. In order to make the athlete take advantage of added

(Continued on page 47)

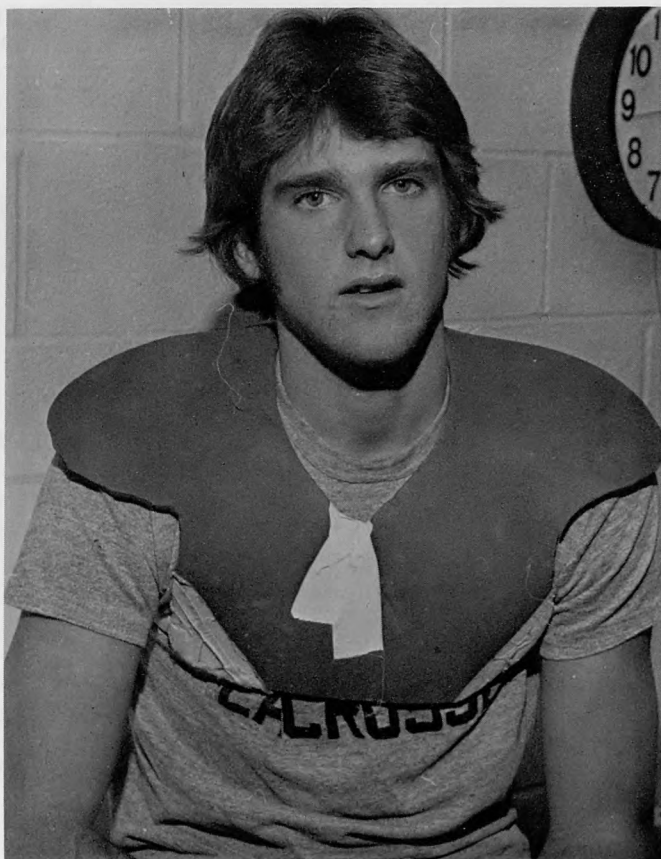


FIGURE 1. One piece pad cut from special foam rubber. Note the side straps are made of the same elastic strap material used in football shoulder pads.

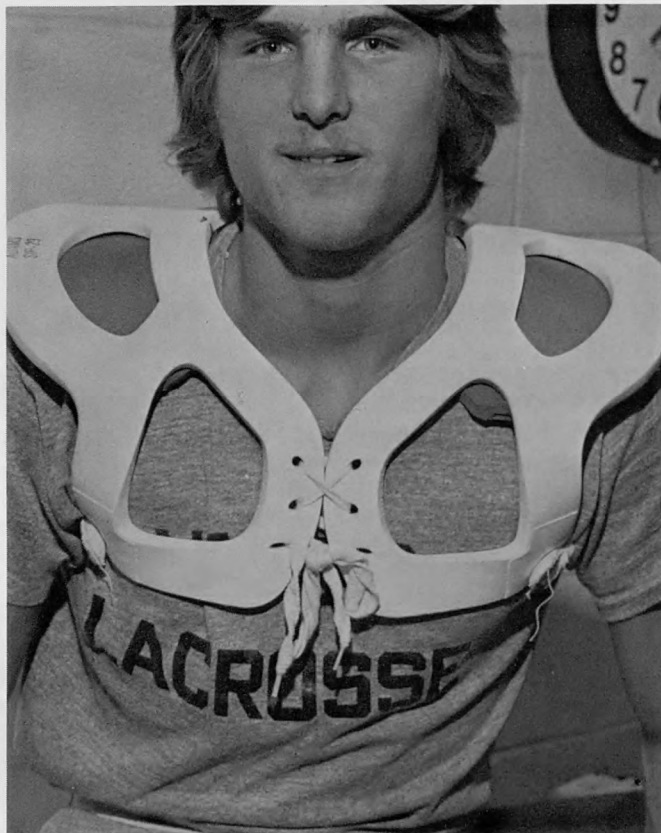
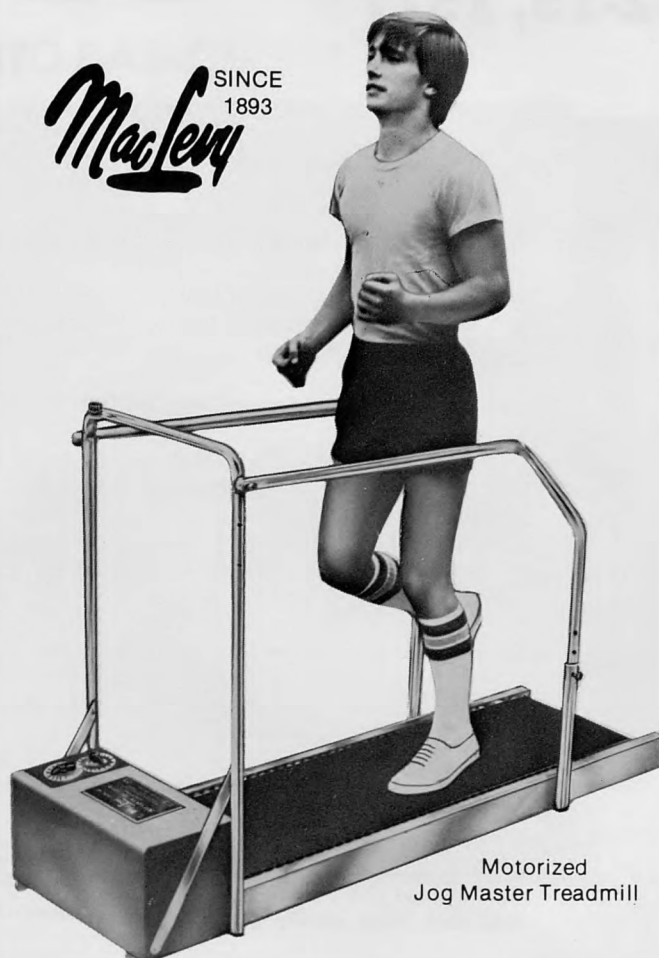


FIGURE 2. Football injury pad that normally fits beneath football shoulder pads. The side straps are already part of the pad. The only necessary addition is a special foam rubber piece over the area that covers the very top of the shoulder.

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National Athletic Trainers Association Annual Convention - June 12-15, 1977

DEARBORN

THEME: EDUCATION

PROGRAM ABSTRACTS:

Problems of the Elbow - Bob Spackman, Southern Illinois University

An up to date discussion of the problems of the elbow with concentration on functional testing, ice therapy, and multi-dimensional rehabilitation.

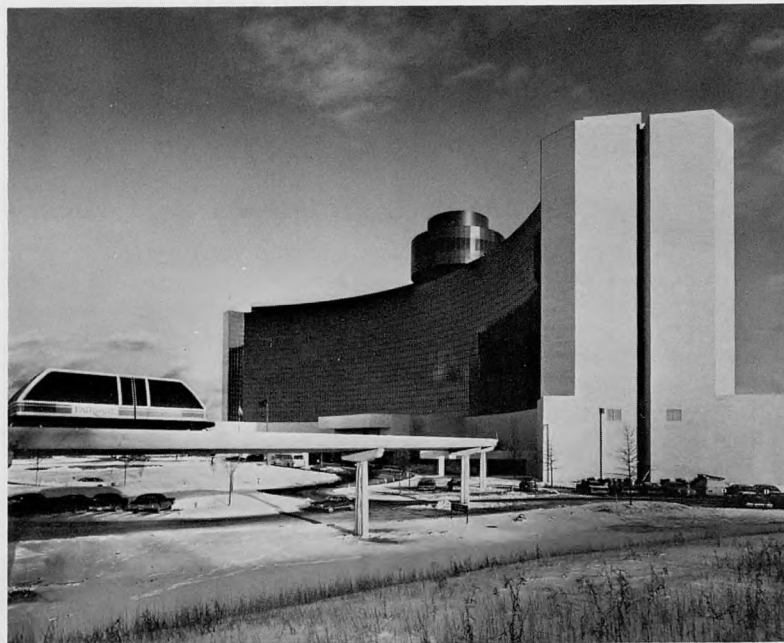
Dealing with the Wrist and Hand - Gail Weldon, Western Illinois University

The evaluation and rehabilitation of injuries to the hand are often neglected in our discussions in deference to other larger joints. This presentation will show, through a slide presentation, a variety of rehabilitation exercises for the hand and wrist. Different methods of evaluating and strapping these injuries will also be discussed.

Panel Discussion on the Shoulder - Moderator: Bob Behnke, Indiana State University; Wayne Rassmusen, Seattle Sports Medicine Clinic; Bob Moore, Valparaiso University; Bob Bauman, St. Louis Cardinals.

Head and Face Injuries - Mike Willie, Berkshire Sports Medicine Institute

This presentation will include such topics as alteration of cerebral physiology by injury, recognition and first aid for head injuries and a discussion on injuries in the vicinity of the eyes, ears, nose, maxilla, and lower jaw.



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Student Trainers Banquet - Sunday
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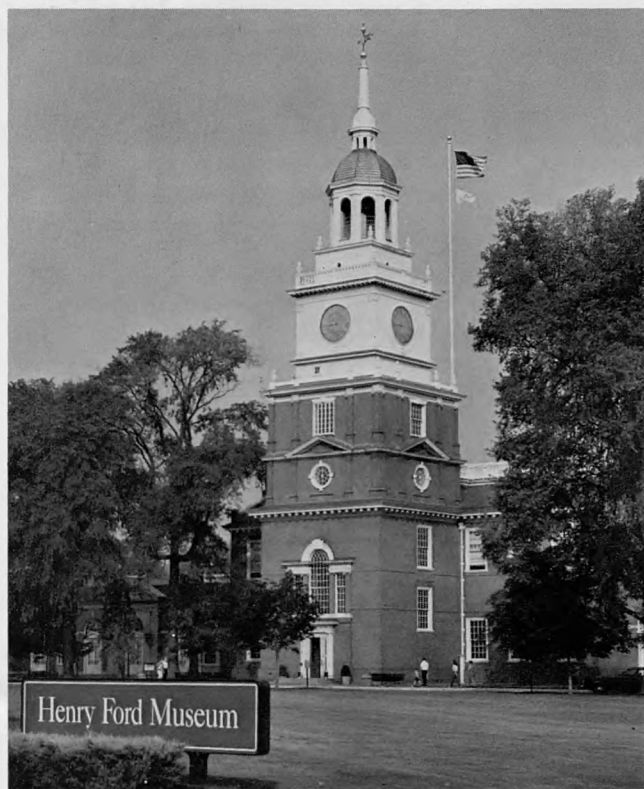
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BORN 1977

BACK TO BASICS



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Entrance to nearby world famous Henry Ford Museum.

Neck Injuries and What the Certified Trainer Should Know - Ted Quendenfeld, Temple University

The importance of preinjury preparation for neck injuries, the do's and don'ts of handling them, helpful hints in recognition and onsite evaluation of neck injuries will be presented.

Knee Injuries - Rod Compton, East Carolina University

A review of some anatomy, mechanisms of injury, examination and evaluation, general treatment and rehabilitation of the knee will be seen in a unique lecture/slide presentation.

Injuries to the Upper Leg - Dennis Aten, Eastern Illinois University

First to second degree muscle strains seem to be the greatest day-to-day upper leg problem for athletic trainers. Contributing factors include lack of strength and strength balance, lack of flexibility, insufficient warmup, fatigue, mineral imbalance and uncoordinated movements. These items along with treatment and rehabilitation of these injuries to the upper leg will be discussed.

Panel Discussion on Shinsplints - Moderator: Al Green, University of Michigan; Walt Kanicki, Bay City High School, Bay City, Michigan; Ken Kopke, Central Michigan University; Ed Abramowski, Buffalo Bills

Hyatt Regency - Dearborn Dearborn, Michigan

Heat Illness - Joe Gieck, University of Virginia

The primary causes of heat illness are temperature, humidity, and stupidity. Heat is gained or lost by convection, conduction, radiation, and evaporation, the most important being evaporation. Gains of heat result in circulatory instabilities, water and electrolyte balance disorders, and heat stroke. Water depletion and salt depletion heat exhaustion often coexist, but water depletion on heat exhaustion leads to heat stroke. The difference in the two will be presented, as well as the effective means of treatment of heat exhaustion and heat stroke.

Emergency Transportation - Pinky Newell, Purdue University

It is of the utmost importance that recognition be given to the severity of injury and that proper transportation be made of the injured athlete. Guidelines should be established and, where possible, should be written. Concerning specific injury procedures, there are those that are medical emergencies in which medical attention is important to the general health and possibly life of the athlete. Such situations are the head injuries, the breathing and bleeding concerns and the non-medical emergencies that include the sprains, bruises, minor lacerations, etc.

Panel Discussion of the Ankle - Moderator: Marge Albohm; Bob Kerns, Portage High School, Portage Indiana; Gordon Stoddard, University of Wisconsin

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Your contributions and continuing support to the NATA Scholarship Fund are always welcome and are necessary so that the endowment goal of \$500,000 can become a reality. Please remember that our program of financial assistance is a four-fold one that offers scholarships, loans, grants and part-time employment. Organizational support from the NATA to the Fund continues, but your individual contributions are vital to the Scholarship Fund's ultimate success. All contributions are tax deductible. Won't you consider now the importance of your participation in the NATA Scholarship Fund? Make your checks payable to Scholarship Program, and mail them to this address: NATA, Chairman - Grants & Scholarship, 3315 South Street, Lafayette, Indiana, 47904.

CERTIFICATION

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.

AMA STATEMENT WEIGHT LOSS IN AMATEUR WRESTLING

The House of Delegates of the American Medical Association considered Resolution 126, A-76 entitled "Weight Loss in Amateur Wrestling" at the Annual Clinical Meeting in Philadelphia, Pennsylvania on December 4-8, 1976. The Resolution requested that the American Medical Association "strongly and emphatically declare its formal opposition to the common practice of rapid and significant weight loss" among amateur wrestlers in age groups where rapid growth is taking place.

The AMA Committee on the Medical Aspects of Sports has long been interested in the charges that ill-advised and medically hazardous practices of weight control are being practiced. Allegedly, some wrestling coaches have advised growing boys to obtain and maintain for the season certified weights considerably below their optimum weights, using crash diets and/or dehydration to retain eligibility at certain weights. After the weigh-in and before the contest, these boys would then attempt to regain as much weight as possible. The Committee examined the problem in depth and devoted portions of its 1965 and 1966 National Conferences on the Medical Aspects of Sports to examining the critical questions raised by these practices in the wrestling community. These questions included the hazards of indiscriminate and excessive weight reduction, the "safe" amount of weight that a wrestler can lose, acceptable means of losing weight, and the most desirable weigh-in plan.

The Committee published a comprehensive statement entitled "Wrestling and Weight Control" (JAMA 201: 541-543, 1967) which is still pertinent today. In summary, it was noted that any form of dehydration will impair performance for a wrestler. Water deficiency causes premature fatigue and eventually clinical illness, more rapidly than deficiency of any other nutrient. Professional judgment would best exercise if coach and physician take as their objective the boy's effective weight level. For any athlete there is no alternative to a balanced diet at a sustained caloric level, adequate fluid intake, and high-energy output for obtaining and maintaining an effective competitive weight. Effective weight of wrestling candidates can

best be assessed through a natural approach; an attempt to attain and maintain an effective weight level lower than that determined by this process would work considerable hardship on the athlete.

The American College of Sports Medicine has recently reviewed the subject in depth also and has issued a position entitled "Weight Loss in Wrestlers" (July, 1976). The College feels that the potential health hazards created by the procedures used to "make weight" by wrestlers can be reduced by following certain outlined procedures devoted to maintaining the health of the athlete at all times.

RESOLVED: The American Medical Association reaffirms the position of the AMA Committee on the Medical Aspects of Sports and the American College of Sports Medicine that rapid and significant weight loss or unrealistic weight maintenance over protracted periods in amateur wrestlers are practices detrimental to good health and induce potentially serious illnesses in younger athletes.

* * *

MEDICAL INFORMATION RELEASE FORM

Athletic trainers should be aware of the rights of the athlete regarding his medical records. A form such as this should be signed before any information is released to professional scouts or professional clubs.

CONSENT TO RELEASE MEDICAL INFORMATION

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DATE: _____

STUDENT: _____
WITNESS: _____

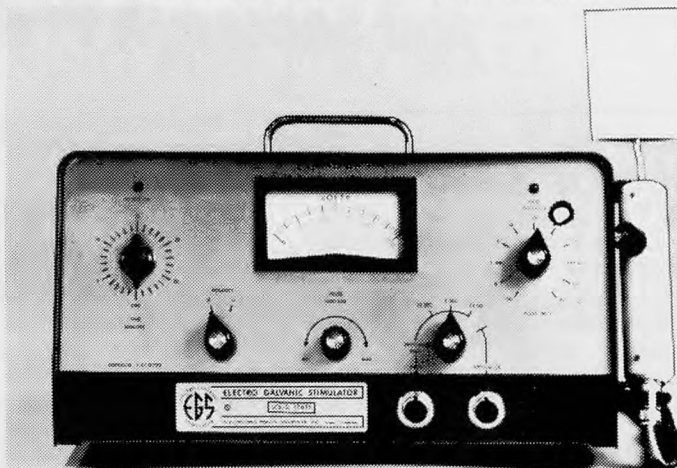
(Continued on page 48)

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Turf-Related Injuries in College Football and Soccer: A Preliminary Report

by Kenneth S. Clarke, Ph.D.
and Sayers J. Miller, Jr., A.T.,C.

The National Athletic Injury/Illness Reporting System (NAIRS) was requested by the U.S. Consumer Product Safety Commission (CPSC) in September 1976 to put in preliminary perspective the association of artificial turf to turf-related injuries in college football and soccer. Two more seasons are required before the findings can be interpreted with confidence; but in the absence of other data systemically obtained from a sizeable population, the CPSC desired perspective in determining whether this product constituted an "imminent hazard" to athletes (for a House Select Committee on Professional Sports hearings several days later). Within two hours, the following data were retrieved using the computer programming developed by a CPSC Contract.

BACKGROUND

Football injury data were obtained from 41 college-university teams from across the country who subscribed to NAIRS-I procedures for the 1975 season. Fifteen teams contributed a full season of soccer data. NAIRS-I is the version of the system which accommodates the optimal amount of variables feasible on a surveillance basis. Variables within NAIRS-I include surface, helmets, shoes, and other protective products.

For this task, particular injury problems alleged to be associated with artificial surfaces were chosen. To display the data, the injuries were selected by two respective criteria: REPORTABLE cases and SIGNIFICANT cases.

Except for concussion, a REPORTABLE case requires an absence from participation for at least one day after day of onset. This permits cautious overnight medical observation of a potentially limiting injury prior to a decision as to continued play. Concussions require merely cessation of the athlete's activity for evaluation, whether for ten minutes or ten days.

A SIGNIFICANT injury is a reportable injury which keeps the athlete out of participation for at least one week. This classification helps accommodate the widely variable reporting and management of the athlete with a minor injury: some will be kept out of practice until the game while others will be told to "work it off." It is the SIGNIFICANT injury that should receive priority attention in the search for problems and patterns. For this report, fractures were displayed as MAJOR as well (participation interrupted for at least three weeks) to provide better perspective in evaluation of this type of injury.

The tables were displayed as to SPORT-RELATED (games and practices) and GAME-RELATED (official games only) for further perspective. The GAME-RELATED data are considered more meaningful because "the game" equalizes the intensity of activity. The use of practice time varies widely among coaches, and the turf may play a coincidental role in this regard. NAIRS is also capable of delimiting interest to home games, away games, practice-skill training, practice-conditioning, practice scrimmages, and practice-contests.

Finally, the data are expressed as rates per athlete-exposure in order to provide perspective in this regard as well. Calculation of athlete-exposures provide a common denominator for comparing the frequency of injuries when the exposures to respective surfaces vary. Athlete-exposures are calculated by multiplying a team's practice squad size times the number of practices on a surface and the team's game squad size times the number of games on a surface. (Fifty athletes practicing five times on Astroturf produces 250 athlete-exposures to Astroturf.) For rates, athlete-exposures to a surface were divided into the cases experienced on that surface and multiplied by a common number to arrive at an interpretable whole number. (If ten of the above fifty athletes suffered an injury during the five practices, the rate would be $10/250 \times 1000 = 40$ per 1000 athlete-exposures.)

For this report, the common number of 1000 game athlete-exposure was utilized for GAME-RELATED data, while 10000 game and practice athlete-exposures was used for normalizing SPORT-RELATED data.

All injuries were reported on a weekly basis to NAIRS, with the

Table 1
COLLEGE FOOTBALL -- 1975 SEASON
PROPORTION OF ATHLETE-EXPOSURES (41 TEAMS)
By Surface Type

| | Natural turf | All Artificial turf | (Astro turf) | (Tartan (Poly turf) | turf) |
|---------------------|-----------------|---------------------------|-----------------|------------------------|-------|
| Games | | | | | |
| Athlete-Exposures | 14214 | 9588 | 5920 | 3007 | 661 |
| % of Exposures | 60 | 40 | 25 | 13 | 3 |
| Practices | | | | | |
| Athlete-Exposures | 157270 | 126666 | 91201 | 35465 | 0 |
| % of Exposures | 55 | 45 | 32 | 13 | 0 |
| Total Season | | | | | |
| Athlete Exposures | 171484 | 136254 | 97121 | 38472 | 661 |
| % of Exposures | 56 | 44 | 32 | 13 | 0.2 |

Note: This project has been funded in part with Federal funds from the United States Consumer Product Safety Commission under contract number CPSC-C-76-0050. The content of this publication does not necessarily reflect the views of the Commission, nor does mention of trade names, commercial products, or organizations imply endorsement by the Commission.

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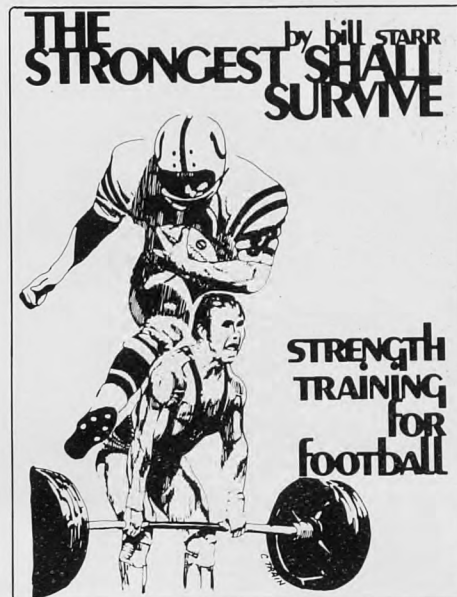
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weekly reports including the frequency of practices and games on respective surfaces that week plus the squad size at practices and games that week. Consequently, end-of-season recall problems were avoided.

FINDINGS AND DISCUSSION

It is not the purpose of this report to provide a studied conclusion on the hazards or attributes of artificial surface. While the number of athletes constitutes the largest number followed to date with such detail, one year's data have no known stability. Ensuing years will have to determine whether the patterns displayed here will prevail or fluctuate widely. These data also do not accommodate the possible influence of various helmets and shoes on the incidence of injuries associated with respective surfaces. Such considerations will receive preliminary analysis after the end of the 1976 Season. Further, these data cannot be used to provide evidence of cause and effect. They only show the association of selected injuries with the surface on which the athlete was participating when stricken.

Nonetheless, statistical analysis was performed for each category of injury to examine the injury rates associated with natural and artificial turfs to date, and the findings permit a few generalizations.

1. Artificial turf did not constitute an imminent hazard to the college football and soccer teams experiencing it in 1975. When attention was limited to significant injuries, no surface-relatedness was found. In fact, the spuriousness of interpreting injury data which mix minor and significant cases was revealed.

2. "Artificial turf" is too general a concept for decision-oriented examination of injury data. Different manufacturers produce different surface systems by different patents and processes. To pursue discernible patterns of reportable or significant injuries, it would be best to set aside the generic term for respective brand names.

3. More subscribing teams are needed to gain a repository of injuries of sufficient size to permit examination of surface-relatedness by brand and multivariable associations. To break-down these preliminary tables further, to examine associated factors (e.g., turf vintage, other situational characteristics, equipment worn, etc.), more cases are required to have a usable number of subjects in a matrix cell. To illustrate, because Polyurf ac-

Take 2
COLLEGE FOOTBALL -- 1975 SEASON
CASES PER 1000 ATHLETE-EXPOSURES
FOR SELECTED GAME-RELATED INJURIES

| | Natural turf | All Artificial turf | (Astro turf) | (Tartan turf) | (Poly turf) |
|-----------------------|-----------------|---------------------------|-----------------|------------------|----------------|
| Fractures | | | | | |
| Reportable | 3 | 2 | 2 | 2 | 2 |
| Major | 2 | 1 | 1 | 1 | 0 |
| Abrasions | | | | | |
| Reportable | - | 1 | 1 | - | 0 |
| Significant | 0 | 0 | 0 | 0 | 0 |
| Concussions | | | | | |
| *Reportable | 3 | 6 | 4 | 7 | 11 |
| Significant | - | - | - | - | 0 |
| Knee Injuries | | | | | |
| Reportable | 11 | 13 | 13 | 16 | 8 |
| Significant | 5 | 6 | 5 | 8 | 5 |
| Ankle Injuries | | | | | |
| *Reportable | 7 | 11 | 11 | 10 | 12 |
| Significant | 3 | 3 | 3 | 3 | 3 |
| Foot Injuries | | | | | |
| *Reportable | 1 | 3 | 4 | 3 | 0 |
| Significant | - | - | - | - | 0 |

*p .01, Natural vs Artificial

Table 3
COLLEGE FOOTBALL -- 1975 SEASON
CASES PER 10000 ATHLETE-EXPOSURES
FOR SELECTED SPORT-RELATED INJURIES

| | Natural turf | Artificial turf | (Astro turf) | (Tartan turf) |
|-----------------------|-----------------|--------------------|-----------------|------------------|
| Fractures | | | | |
| Reportable | 5 | 5 | 5 | 6 |
| Major | 2 | 3 | 2 | 3 |
| Abrasions | | | | |
| Reportable | - | 1 | 1 | - |
| Significant | 0 | - | - | 0 |
| Concussions | | | | |
| *Reportable | 6 | 8 | 5 | 11 |
| Significant | 1 | - | - | - |
| Knee Injuries | | | | |
| *Reportable | 20 | 25 | 24 | 27 |
| Significant | 9 | 11 | 11 | 12 |
| Ankle Injuries | | | | |
| *Reportable | 14 | 20 | 21 | 16 |
| Significant | 5 | 6 | 6 | 5 |
| Foot Injuries | | | | |
| *Reportable | 3 | 5 | 5 | 5 |
| Significant | 1 | 1 | 1 | 1 |

*p .01, Natural vs Artificial

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counted for only 0.2% of all sport-related exposures, it was excluded from Table 3 (Sport-Related Case Rates).

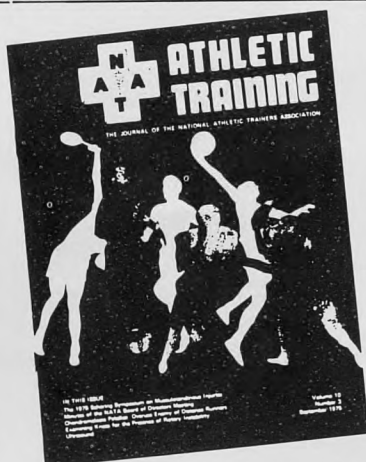
4. The considerable variation among respective teams' injury experiences within these data preclude generalizations on artificial surface based on a particular team's experience or a small number of teams' experiences.●

Table 4
COLLEGE SOCCER -- 1975 SEASON
PROPORTION OF ATHLETE-EXPOSURES (15 Teams)
BY SURFACE TYPE

| | Natural turf | Artificial turf | (Astro turf) | (Tartan turf) | (Poly turf) |
|---------------------|-----------------|--------------------|-----------------|------------------|----------------|
| Games | | | | | |
| Athlete Exposures | 3418 | 749 | 498 | 0 | 251 |
| % of Exposures | 82 | 18 | 12 | 0 | 6 |
| Practices | | | | | |
| Athlete Exposures | 17167 | 2405 | 0 | 0 | 2405 |
| % of Exposures | 88 | 12 | 0 | 0 | 12 |
| Total Season | | | | | |
| Athlete Exposures | 20585 | 3154 | 498 | 0 | 2656 |
| % of Exposures | 87 | 13 | 2 | 0 | 11 |

Table 5
COLLEGE SOCCER -- 1975 SEASON
CASES PER 1000 ATHLETE-EXPOSURES
FOR SELECTED GAME-RELATED INJURIES

| | Natural turf | Artificial turf | (Astro turf) | (Poly turf) |
|-----------------------|-----------------|--------------------|-----------------|----------------|
| Fractures | | | | |
| Reportable | 1 | 3 | 0 | 8 |
| Major | 0 | 1 | 0 | 4 |
| Abrasions | | | | |
| Reportable | 0 | 0 | 0 | 0 |
| Significant | 0 | 0 | 0 | 0 |
| Concussions | | | | |
| Reportable | 1 | 0 | 0 | 0 |
| Significant | 0 | 0 | 0 | 0 |
| Knee Injuries | | | | |
| Reportable | 2 | 3 | 0 | 8 |
| Significant | 1 | 1 | 0 | 4 |
| Ankle Injuries | | | | |
| Reportable | 2 | 3 | 2 | 4 |
| Significant | 1 | 0 | 0 | 0 |
| Foot Injuries | | | | |
| Reportable | 2 | 1 | 0 | 4 |
| Significant | 1 | 0 | 0 | 0 |



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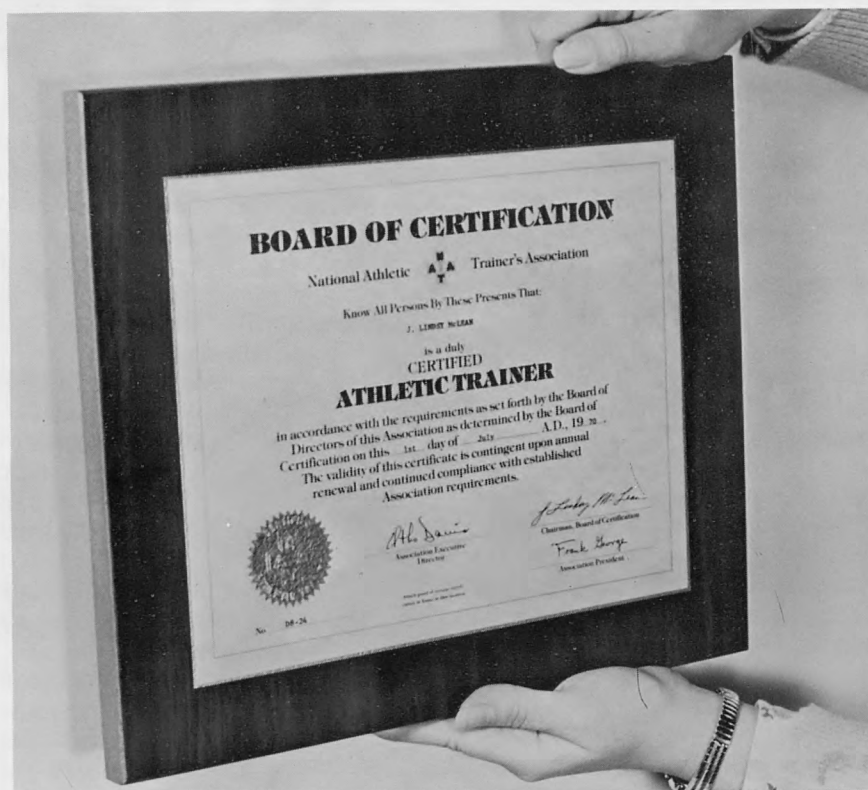
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CHARLES FRAZIER
Madisonville Jr. High

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In selecting the coaching profession, the individual assumes an obligation to conduct himself in accordance with its ideals, which are set forth in a code of ethics. Any coach who is unwilling or unable to comply with the principles emphasized in the code should have no place in the coaching profession.

At the March, 1976 Board of Directors meeting the Texas High School Coaches Association went on record and adopted as a permanent part of its Code of Ethics not to teach the use of the helmet and/or face mask as a primary part of contact in blocking and tackling techniques.

The reputation of the coaching profession is dependent upon the manner in which the coaches of the state live up to both the letter and the spirit which a code represents. Error in Coaching Technique

For many years medical associations have cautioned coaches of the hazards of blocking and tackling techniques which use the helmet and/or face mask as the initial point of contact. It has been well documented by the medical profession that techniques such as butt-blocking and face-tackling result in injuries of severe magnitude and are the leading cause of fatalities in football.

"The Forty-Fourth Annual Survey of Football Fatalities" showed an increase in the number of football fatalities associated with football participation. Fifteen fatalities were directly related to football during the year 1975. Of the fifteen fatalities occurring in 1975, one occurred in college, thirteen in high school, and one in sandlot. All fifteen of the direct fatal injuries resulted from injuries to the head, neck and spinal cord.

Hitting with the head not only may produce serious acute injury, but is certain to produce degenerative and chronic changes in the cervical spine that will have a perma-

ment effect on the lives of the boys who are taught to tackle and block by these methods.

In spite of mountains of medical evidence supporting the inherent dangers of butt-blocking, face-tackling and other head hitting techniques, coaches continued to teach hazardous head hitting tactics in disregard of safety and well-being of the boys they coached.

In the fall of 1974 an ABC-TV news documentary presented to the nation the dangers of the high contact game of football. A major portion of the telecast was devoted to an attack upon coaches who teach blocking and tackling techniques that use the helmet and/or face-mask as the initial and primary point of contact.

The general response to the highly acclaimed news special was overwhelmingly favorable, with most people saying they just didn't realize what the situation was.

Despite public awareness of the dangers of head hitting techniques, coaches continued to teach the hazardous use of the head in football.

At the suggestion of the National Federation Executive Committee, the 1975 National Alliance Football Rules Committee adopted a strong statement on the use of the head in football. The essence of the statement was that the head should be used for direction, not for contact. The arms and shoulders are to be used for the initial contact and the follow-through. The statement was

a point of emphasis in the National Alliance 1975 Official Football Rules Book. The suggestion of the National Federation was ignored. Coaches continued to teach the hazardous use of the head in football.

On June 11, 1975 the National Athletic Trainers Association released a resolution opposing the use of tackling and blocking techniques with the helmet and/or face-mask as the initial point of contact. The resolution called for an immediate halt to the teaching of such techniques. Head hitting techniques were sharply condemned by the NATA as extremely dangerous.

Coaches continued to teach head hitting techniques in defiance of the advice of the "trainer," the only health care professional in daily contact with the athlete who is trained to observe and counsel against potential hazards.

Curious and Gross Rationale

Coaches teaching the hazardous head hitting techniques have given some curious and somewhat gross rationales in justification for teaching these hazardous tactics:

1. The helmet is sufficient armor to protect the head against injury.
2. Hitting with the head will check the progress of the opponent more effectively than hitting with the shoulder.
3. Other coaches teach the method.
4. There are no state or national rules against the tactics, ergo, they must be safe.



Coach Charles Frazier is well known in coaching circles as the author of numerous articles on various topics relating to athletics. His relevant and timely articles have been published in leading national and state coaching publications.

Since writing articles on the hazards of helmet-face mask blocking and tackling techniques last fall for Scholastic Coach, Coach & Athlete, Texas Coach, and California Coach, the 1976 NCAA and National Alliance Football Rules Committee have formulated strong, stringent, and precise rules to help eliminate the hazardous helmet-face mask hitting techniques.

Coach Frazier is a graduate of Baylor University and received his master's degree in physical education from Sam Houston State University.

The drawings are by Seabrook artist Rosanne Allen Frazier.

5. I have been teaching the method and have never had a serious head or neck injury.

6. At any rate, players assume the risk of injury when they go out for football.

The disjointed logic of such argument is obvious and needs no comment.

1976 National Alliance Football Rules

Until now, football rules committees have felt they should not legislate regulations upon coaches as to how blocking and tackling should be taught, but rather relied on and continually urged coaches who taught helmet/face-mask hitting to revise their coaching techniques and de-emphasize contact by the head.

Unfortunately, appeals to the ethics and morals of football coaches have not worked. Rules' committees have been forced to formulate strong, stringent, and precise rules to help eliminate the hazardous head hitting techniques.

The 1976 National Alliance Football Rules Committee, which formulates the rules of high school competition in 47 states and for the National Association of Intercollegiate Athletics and Allied Groups have made butt-blocking and face-tackling techniques personal fouls. The penalty for each is fifteen yards.

In helping to formulate the new 1976 rules, the National Alliance Football Rules Committee sent questionnaires for the purpose of securing the opinions of proposed changes. The questionnaires were mailed to coaches and officials through the state high school association offices and the National Association on Intercollegiate Athletic headquarters.

The question was asked, "Do you teach initial contact with the head when blocking and tackling?" Of those responding, 1764 indicated they do teach blockers to make initial contact with their heads and 2,477 taught face-tackling. Of the coaches responding, 1,441 indicated players on their teams suffered neck injuries. This was slightly more than 38% of coaches responding to this item. This correlates with figures presented from the well-known Iowa study and substantiated in many other studies made by leading authorities in sports medicine, that one in three high school

players on their teams suffered neck injuries.

National Alliance Rule 9-3-21 states; "No player shall use butt-blocking or face-tackling techniques." The rules define butt-blocking as a technique involving a blow with the face-mask, frontal area or top of the helmet driven directly into an opponent as the primary point of contact either in close line play or in the open field. Face-tackling is driving the face mask, frontal area or top of the helmet directly into the runner.

1976 NCAA Football Rules

The 1976 NCAA Football Rules Committee in the best interest of the game of football has made stringent changes in the rules related to the use of the head. All changes are directed specifically to the protection of the player in injury related to the head and neck.

In the NCAA football code that appears in front of the rule book a portion deals with the code of ethics related to coaching. These statements have been placed in the first paragraph under coaching ethics and add a great deal of importance to the responsibility of coaches concerning the use of the head. It more clearly defines the distinction between the responsibility of the official as it is related to the responsibility of the coach.

The Code reads: "The football helmet is for the protection of the player and is not to be used as a weapon. The American Football Coaches Association has stated; (a) The helmet shall not be used as a primary point of contact in the teaching of blocking and tackling. (b) Self-propelled mechanical apparatus shall not be used in the teaching of blocking and tackling. (c) Greater emphasis by players, coaches, and officials should be placed on eliminating spearing."

In considering the importance of these new statements in the Code the coach definitely now has a responsibility related to his teaching techniques on the practice field. In the event of a head or neck injury sustained in a game the coach is accountable for clearly identifying that head hitting techniques were not being taught. It also places emphasis on the teaching of techniques and separates the responsibility of coaching and that of the official in that the official is to recognize the

foul when it occurs. He must interpret the rule as it is written and that is not related in any degree to teaching of the game by the coach.

It is hoped that there will be a great deal of carryover from the practice field to the actual game itself. Officials do not assume that there are any violations of the code in the teaching process which would have an effect upon their interpretation of what they see on the field. Officials assume that all coaches are abiding by the code of ethics.

The first area the rules committee approached in more clarification and broader definitions in attempts to reduce injury to the head and neck was in Rule 2-24-1 in the definition of "spearing". The 1976 Rule reads: "Spearing is the deliberate use of the helmet in an attempt to punish an opponent." The change here is that in 1975 the words "malicious use" were used and also the words "after his momentum has stopped". These words have been reduced.

The official does not have to make a judgment as to whether the act is malicious or not. He also does not have to make a judgement as to whether the momentum of the player has stopped or not. The effect of this change broadens the definition of spearing and it reduces the judgment of the official to the extent that he now must determine only that the act is deliberate and that it is committed in an effort to punish the opponent. The momentum of the person against whom the act is committed

is no longer a consideration. Spearing can be committed by an offensive player. For example by a player blocking on the pile or by a defensive player, primarily on the runner.

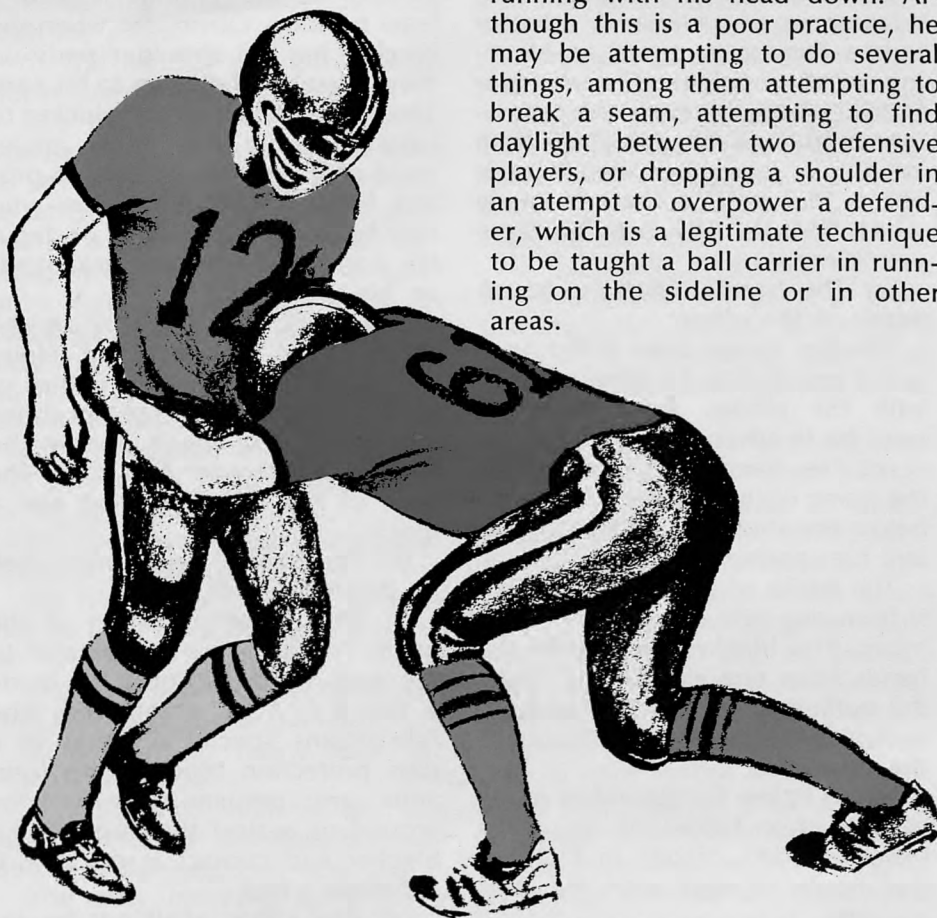
To understand the new definition of spearing and the other rules that follow, you must consider that there is a relationship between the code of ethics, spearing, butting, and so forth. Sometimes the lines that divide them are very fine and the fact is that they are related and in some cases they do overlap. They should be thought of in relationship to each other in order to better understand the ultimate intent and purpose.

The second area the rules committee approached was in Rule 9-1-2L which has been rewritten to read: "No player shall deliberately use his helmet to butt or ram an opponent." The change from 1975 was in the elimination of the words "and maliciously". This is no longer a determination an official must make. The key word is deliberately. The effect of this change again is to broaden the definition. The official must judge that the act was deliberate.

In the administration of Rule 9-1-2L the official must be certain that a butt or a ram does not take place because of the movement of the opponent. It is entirely possible that the player who commits the act is attempting to block legitimately, but by virtue of movement of the player on whom he is blocking he may strike him with his

NEW LEGAL BLOCKING POSITION 1976 NCAA RULES

1. Hands in advance of elbows.
2. Hands inside the frame of blocker's body.
3. Hands below the shoulders of the blocker and his opponent.
4. Hands and arms parallel to the ground.
5. Arms shall not be extended more than one-half a of full extension.
6. The hands should be cupped or closed with the palm not facing the opponent.
7. During no block shall the hands be locked.



ILLEGAL BY RULE — UNETHICAL BY CODE

helmet in an act which appears to be a butt or a ram but is not in fact a deliberate act. The rule specifies that it shall be deliberate.

The intent of this rule does not necessarily concern itself with close line play. It includes not only contact which occurs at the line of scrimmage but on linebackers, cornerbacks, etc. It is recognized that contact with the helmet on the line of scrimmage is often the result of body movement and is not an intentional or deliberate act on the part of the player. It is also recognized that in the execution of a shoulder block it is almost impossible to have no contact with the helmet. Many times it is a matter of very few inches as to a legitimate shoulder block and illegal contact with the helmet. The rules specify that it must be a deliberate act.

The question has been presented in relation to the ball carrier in that the ball carrier might also deliberately butt or ram an opponent. Again you must look at the intent of the rule. The intent of the rule is not directed toward the ball carrier

running with his head down. Although this is a poor practice, he may be attempting to do several things, among them attempting to break a seam, attempting to find daylight between two defensive players, or dropping a shoulder in an attempt to overpower a defender, which is a legitimate technique to be taught a ball carrier in running on the sideline or in other areas.

The final area of the rules related to the use of the helmet is a new item added to the rules which reads: "No player shall intentionally strike a runner with the crown or the top of his helmet". This is in Rule 9-1-2N. It is a new rule in its entirety and it is a rule which has some relationship to spearing and also to butting and ramming as it deals with the runner. A tackle by a defensive back one-on-one which is made with the head down is a foul.

Statistics indicate that the tackler, and primarily the defensive back who tackles with his head down, is the player who receives 80-85% of the serious head and neck injuries which result in disability and death.

A tackler who tackles one-on-one on a ball carrier with the crown of the helmet or the top of the helmet has committed a foul. *The hope of the rules committee is that coaches will insist on a defensive back tackling in an upright position with the face-up, which is a much safer position for the player to be in.* The key word in the rule is the word "intentionally." No player shall in-

tentionally strike a runner with the crown or top of the helmet. There is no distinction between the crown and the top of the helmet. By definition the crown is the top of the helmet.

It is possible that the tackler may inadvertently strike a runner with the crown of his helmet when obviously off balance or while he is attempting to ward off blockers. This would not constitute a foul because the player committing the act does not have full control of the act being committed and it is not intentional.

The new rule broadens what formerly constituted "spearing", in that any time a runner who is already tackled by another defensive player or one who is on his way down when a defensive player comes in as the second or third man and puts the crown of the helmet on the runner, foul has been committed. Thus, there will be some fouls that occur which formerly would have been ruled "spearing" and that probably now could be ruled either way in terms of the violation that is concerned.

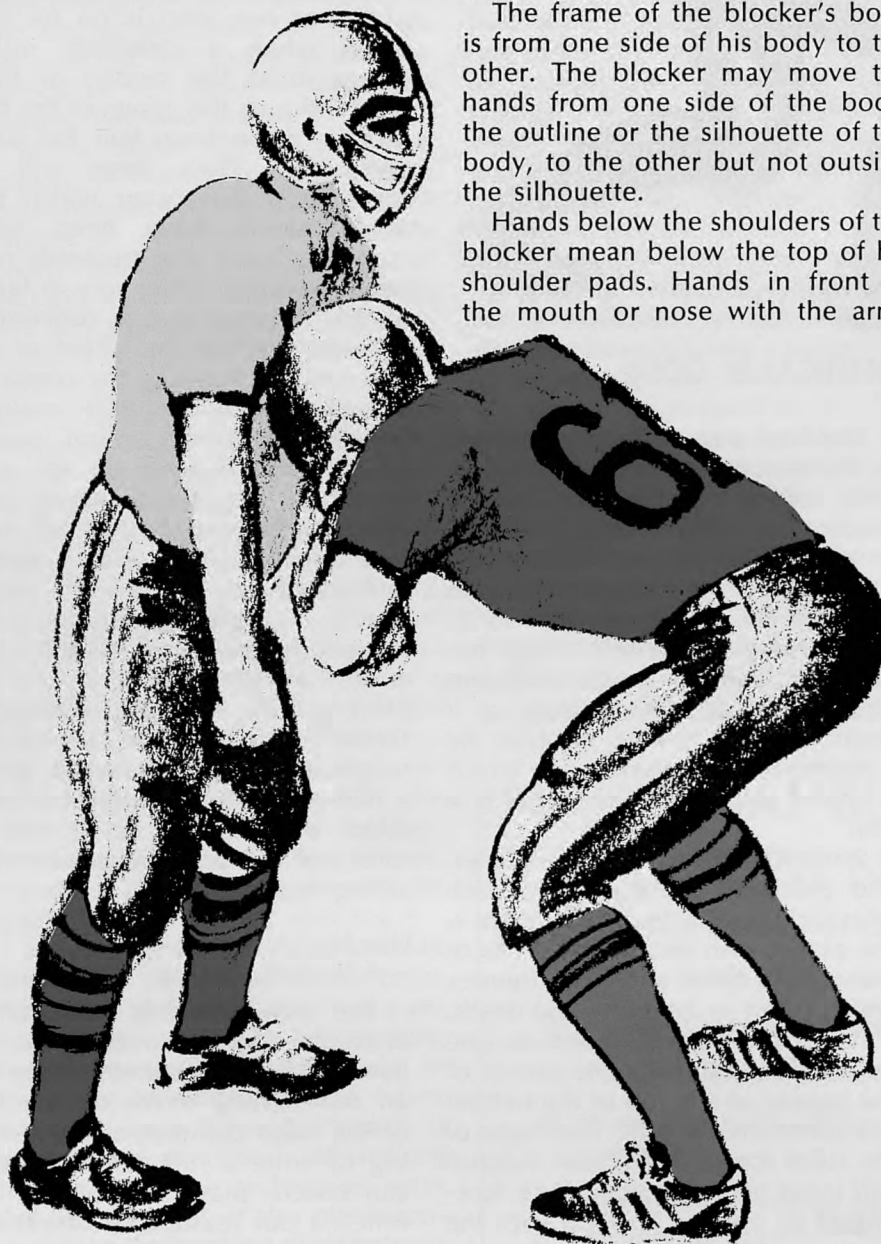
In considering the intent of the rule and the basis of the construction of the rule, it must be realized that 80-85% of the critical injuries which have occurred in the past have been with the defensive back attacking the runner with his head in a down position. This is now a foul and hopefully will encourage coaches to utilize an upright technique in spite of the differences that exist sometimes in sizes of the players. An upright chest-type tackling technique is one of the toughest, surest hits you can put on a ball-carrier in a one-on-one situation. In the long run it will be safer and will probably prevent disabling injuries.

New NCAA Blocking Rules —A Dramatic Change

The new blocking rules are a dramatic change over what we have previously known. They are an outstanding move on the part of the rules committee in attempting to write a rule which coaches can coach, players can play, and officials can reasonably officiate.

The new rules, which have been necessary for a long time, can better be understood by taking each particular item. One must consider

that there are at least two distinct types of blocks used. One is the drive block, or a block that is used primarily at the line of scrimmage by the offensive team a block may be used by an offensive back on an end, etc. The second is the pass protection block, which has two distinct areas. One area is more of an upright body position block on the part of the offensive player. The other is more a situation of the offensive player attacking a defensive player in a position which places the trunk more nearly parallel to the ground. It is important to distinguish between these positions in studying the various portions of the new blocking rules.



ILLEGAL BY RULE — UNETHICAL BY CODE

First of all, the rule states: "When a teammate of a runner or a passer uses a hand(s) or arm(s) in blocking or to supplement a shoulder block:", then there are the following conditions. In studying these conditions remember that there is not a foul until contact is made which violates any one of these conditions.

(a) *The hand(s) shall be in advance of the elbow.*

This has always been in the book and it means that if a blow is struck with the elbow, then the hand must be in advance of the elbow.

(b) *The hand(s) shall be inside the frame of the blocker's body and below the shoulders of the blocker and his opponent.*

The frame of the blocker's body is from one side of his body to the other. The blocker may move the hands from one side of the body, the outline or the silhouette of the body, to the other but not outside the silhouette.

Hands below the shoulders of the blocker mean below the top of his shoulder pads. Hands in front of the mouth or nose with the arms

parallel to the ground is also a legal position. Obviously, when the blocker has his shoulder pads on they extend probably up to his ears. The rule also allows the blocker to have some up and down movement of the hands in order to protect himself from the rusher who may be attempting to jerk or divert his position by putting his hands on his shoulders.

The block should be below the shoulders of the opponent. However if the opponent by virtue of his movement creates contact above the shoulder it would not be the fault of the blocker but rather the fault of the defender, and not a foul.

(c) *The hand(s) and arm(s) shall be parallel to the ground.*

In the upright position if the hands and arms are not parallel to the ground and contact is made a foul has been committed. The rule means specifically that in a pass protection block if the forearms are perpendicular to the ground or against the body of the blocker and contact is made it is definitely a foul.

(d) *The arm(s) shall not be extended more than one-half of a full extension.*

The blocker now has more freedom with the arms. He can have as much as a ninety degree angle between the upper arm and the forearm which is a one-half extension. He can actually use his arms to push, or he can use them as he leads off on a drive block. He may also have a similar position in the pass protection block. *The new rule will hopefully help the blocker get away from the use of the helmet in a so-called butt-technique to meet the force of the runner.*

(e) *The hand(s) shall be cupped or closed with the palm(s) not facing the opponent.*

If the hands face the opponent in any position—open, closed, or cupped—a foul has been committed. It doesn't make any difference whether or not he grabs the offender's shirt or not; if contact is made with the palms on the body of the player it is a foul. He doesn't have to hold him or grasp him. In the past some interpretations have been given to this act that you don't have a foul unless you grasp his jersey. This is not the case now, as it is specifically a violation of the

new blocking rule if contact is made with the palms.

(f) The hand(s) and arm(s) shall not be used to deliver a blow.

This has always been the rule. The hands and arms cannot be used to strike a blow on the opponent. In attempting to ward off a pass rusher a blocker cannot strike upward with the elbows and forearms if in so doing he moves his forearms and hands in a position perpendicular to the ground nor in so doing can he move his hands above his face.

(g) The hand(s) and arm(s) shall not be used to grasp, pull, encircle or lift an opponent.

This has always been in the book. There is no change.

(h) The hand(s) or arm(s) shall not be used to hook, lock or clamp an opponent.

This also has been in the book, and there's been no change.

(i) During no block shall the hands be locked.

This has also been in the rule book in the past and does not constitute a change.

The new blocking rules are a major move in blocking directed primarily toward enabling the official to identify legal and illegal use of the hands and arms by rule. The official can now officiate the game with good conscience knowing that the rule attempts to satisfy the basic techniques required to effectively play the game.

Liberalizing the use of the hands and arms hopefully will have a positive effect in reducing the need for using the helmet in certain types of blocks, primarily because the position of the hands and arms will protect the head to some degree. Texas U.I.L. Under NCAA Football Rules

Whereas the National Alliance Football Rules Committee formulates the rules of high school football competition in 47 states, the NCAA football rules have been used by Texas high schools from the very beginning of the organization of the UIL no other football rules have ever been used. There are several practical reasons why:

1. The SFOA operates out of the Southwest Conference office in Dallas, and it is much more expedient to train from NCAA rules for both high schools and colleges.

2. The League has a great input to the NCAA rules, as the League

and the Texas High School Coaches Association have representatives on the Advisory Football Rules Committee.

3. Texas high schools have had a voting representative on the Football Rules Committee for many years.

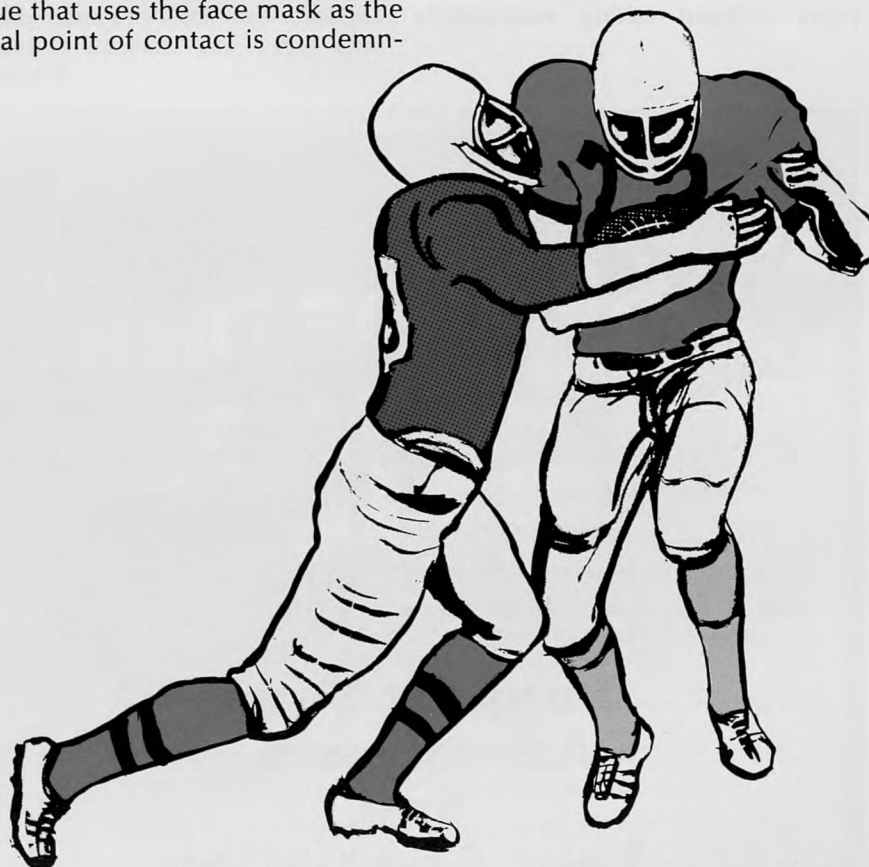
Legal Aspects

In the event of a head or neck injury sustained in a game or practice the coach is now accountable for clearly identifying that head hitting techniques were not being taught.

It is a basic duty and responsibility of the coach to teach football fundamentals and skills in an environment free from unnecessary hazards in order to minimize personal injury. Failure of the coach to so instruct his athletes would breach this duty and be possible grounds for negligent conduct litigation. Every effort should be made to insure that the potential for injury is kept to the absolute minimum and coaches who persist in teaching face tackling type techniques must consider this. Any technique that uses the face mask as the initial point of contact is condemn-

ed as potentially dangerous by authorities in the field of sports medicine. The face mask tackling techniques are condemned because athletes, especially at the high school level, do not execute assignments with such precision to insure that prior to execution of an intended face tackle the natural tendency to duck the head would not occur. Consequently, coaches teaching face tackling are probably teaching most of their players to hit with the top of the helmet or with the crown of the helmet. Undoubtedly the teaching of this type technique is the cause of much of the head hitting in football today, for surely only the most wanton coach would teach a player to actually hit with the top or crown of the helmet.

From the legal view the coach is now not only responsible for teaching stringent compliance to the rules but also is accountable for strict adherence to the code of ethics related or helmet/face mask hitting techniques.



LEGAL ONE-ON-ONE UPRIGHT TACKLE

SAFE AND EFFECTIVE IN OPEN FIELD

All football coaches, whether under the National Alliance Rules or the NCAA Rules, are on notice that blocking and tackling techniques which use the helmet and/or face-mask as the initial point of contact are unnecessarily hazardous. Coaches who continue to teach these condemned tactics are subjecting themselves to probable litigation in the event players under their supervision receive head or neck injuries.

Courts are not as reluctant to hear cases presented by an injured player as they have been in the past. The courts are reviewing with less hesitancy claims presented by students injured in athletic competition.

There are presently suits pending in our nation's courts not only against individual coaches for teaching hazardous blocking and tackling techniques but against interscholastic athletic federations and associations. These suits against federations and associations are based on the premise that they have sat on their information for years without taking responsible

action in the form of banning the teaching of such hazardous tackling and blocking techniques and further, have been derelict in the dissemination of their information to the coaching community.

Conclusion

For a good many years coaches have been instructing their athletes to block and tackle with their helmets, employing this unyielding piece of equipment as a weapon. Now it will be worn only for what it was originally intended—the protection of the player.

In their effort to reduce serious injuries and fatalities, the football rules governing bodies, as well as the administrative organizations, have made rule changes for the 1976 football season. The primary rules changes eliminate the head or helmet/face-mask as a primary initial contact area for blocking and tackling.

The new rules all add up to a few more fifteen-yard penalties this season, but it will also mean the return of the shoulder tackle and block; hence more safety and protection for the players. Also, it

should make for less late hitting and spearing, and hopefully, therefore, fewer injuries.

Through the years the rules committees have endeavored by rule and appropriate penalty to help rid the game of abusive, hazardous tactics and unsportsmanlike conduct. But rules alone cannot accomplish this end. Only the continued best efforts of coaches, players, and officials can preserve the high ethical standards which the public has a right to expect in one of America's foremost interscholastic and collegiate sports.

In the coaching profession the primary purpose of a code of ethics is to clarify and distinguish ethical and approved professional practices from those which are detrimental and harmful. The responsibility of the official is to recognize a foul when it occurs and to interpret the rule as it is written and that is not related in any degree to teaching of the game by the coach. *Administrative and ethical control of the coaching profession is entirely separate and distinct from the playing rules.*

Elimination of hazardous practices is the responsibility of the coaching profession, not rules committees. Because a technique is not specifically "against the rules" in no way indicates that such a technique is not detrimental or harmful.

In determining hazardous practices coaches must look to and consider the recommendations and suggestions of coaches associations and federations as well as authorities in the field of sports medicine, such as the National Athletic Trainers Association and committees on the medical aspects of sports of medical associations. These are the authorities the courts seek in cases of litigation related to athletic injuries. Only that a technique is not "against the rules" would be no defense at all in a court of law.

Because helmet/face-mask blocking and tackling techniques are documented as detrimental and harmful practices the Texas High School Coaches Association adopted as a permanent part of its code of ethics not to teach the use of the helmet and/or face-mask as a primary part of contact in blocking and tackling techniques. •



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Physical Examination of the Spine and Extremities

by Stanley Hoppenfield
Appleton-Century-Crofts
List Price \$16.95
263 pages - Illustrated

This book, which was originally intended as a textbook in physical examination for medical students, orthopedic surgeons, and physical therapists contains a storehouse of information valuable to any athletic trainer.

As the title implies the text deals with the physical examination of the various joints and extremities of the body. The author has elected to devote a chapter to each of the major joints of the body. Accordingly there are chapters dealing with:

1. Physical Examination of the Shoulder
2. Physical Examination of the Elbow
3. Physical Examination of the Wrist and Hand
4. Physical Examination of the Cervical Spine and Temporomandibular Joint
5. Examination of Gait
6. Physical Examination of the Hip and Pelvis
7. Physical Examination of the Knee
8. Physical Examination of the Foot and Ankle
9. Physical Examination of the Lumbar Spine

Each chapter is appropriately subdivided by the nature of the physical examination to be conducted. Inspection of the joint, bony palpation, soft tissue palpation by clinical zones, range of motion, neurologic examination, special tests, and examination of related areas are all explored.

From the standpoint of an athletic trainer this text is extremely valuable in providing numerous insights into the correct procedures of physical examination - an area which occupies much of a trainer's time. I highly recommend this text to the readership of the Journal. The material is presented in a highly organized manner which allows for easy reading and handy reference.

Biomechanics and Energetics of Muscular Exercise

by Rodolfo Margaria
List Price \$15.75
139 pages - Illustrated

The physiology of muscular exercise is a subject area where all sports medicine personnel should achieve at least a basic competency. This includes trainers, coaches, physicians and educators who expound on training principles and other aspects of conditioning and health care as they relate to sport. This text provides a concise yet complete overview of the basic physiology and biomechanics associated with muscular exercise.

The author has elected to divide the text into three primary sections. These include:

1. Energy Sources In Muscular Exercise
2. Some Fundamental Cardio-respiratory Functional Changes Met in Exercise and Other Conditions

3. Biomechanics of Human Locomotion

The first section reviews the chemical reactions occurring in muscle during exercise as well as aerobic and anaerobic power, alactic oxygen debt, aerobic and anaerobic recovery, efficiency of energy transformation processes, and the myriad of relationships that occur between the various physiological processes.

The section on biomechanics is equally complete including a discussion of forces present in walking and running, the utilization of the elastic energy present in isolated muscle, and the effect of gravity on human locomotion. The positive and negative work components present in walking are discussed as is the idea of sprinting in a sub gravity situation.

The author has compiled an excellent text based on many years of research in physiology and biomechanics. The information contained within it would be invaluable to any sport or sports medicine practitioner.●

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The Modality of Therapeutic Exercise: Objectives and Principles

by Peggy Houglum, A.T.,C.
Indiana State University

In athletic training there are three categories of modalities that are generally available to aid in the treatment and rehabilitation of athletic injuries. These are cryotherapy, thermotherapy, and exercise. Depending on ones' knowledge, experience, philosophies, and equipment available, an athletic trainer may utilize either cryotherapy or thermotherapy to attain essentially similar end results: The relief of pain and muscle spasm and the attainment of an optimum healing rate through an increase in the local circulation (1,5,6,7,15,19,20). The modality that sometimes receives secondary consideration, or is even neglected entirely is therapeutic exercise.

Although exercise may be secondary to other therapeutic agents in some training rooms, this author feels it is the most important modality that can be utilized in an athletic training program. When injuries occur,

trainers may apply all the heat and cold modalities that are available to them, but the use of hot packs and ice bags alone will not return athletes to participation. Exercises must be utilized to reduce the chances of re-injury.

OBJECTIVES

In order to establish an exercise program the trainer must first realize the importance of certain basic exercise concepts and principles. There are two basic objectives in a therapeutic exercise or rehabilitation program: "1) To prevent deconditioning of the whole body; and 2) to rehabilitate the injured part" (7). Athletes who have sustained an injury that will restrict their participation for a period of time must perform activities that will prevent them from a significant loss of the general conditioning level they had achieved up to the time of injury.

Exercises that will prevent this deconditioning must not produce further insult to the injured part, and yet must also provide for the maintenance of cardiovascular endurance, muscular strength and muscular endurance. For example, a swimming conditioning program is often an ideal means for an athlete to exercise the uninvolved body parts and maintain his cardiovascular endurance levels simultaneously.

The second objective, the rehabilitation of the injured part, may commence only upon the consent of the physician. Depending upon the physician's background and confidence in the trainer, his prescription may range from specific step-by-step instructions to a simple statement allowing the trainer to rehabilitate the athlete. Wherever on this continuum the physician's orders lie, there are general principles that should be considered by all athletic trainers.

PRINCIPLES

The first principle is that an exercise program should begin as soon as possible following the physician's approval to begin. Rest is important and should not be underrated, but once the physician has permitted the athlete to proceed, there should be no delay in commencing the rehabilitation program. It is estimated that for every day of complete inactivity, two to three percent of a person's strength is lost (13). In experiences with rehabilitating athletes the author has found that, depending upon the total time of inactivity, it may take an athlete at least one to four days to regain the muscular elements that have been lost because of injury and inactivity. The longer a person is kept inactive, the longer it will take to complete the rehabilitation program (21,22). Therefore, to reduce the necessary length of time of a rehabilitation program as well as the amount of time the athlete will remain out of sports participation, rehabilitative exercises should begin as soon as possible.

The second principle is that residual pain must be avoided. Pain is nature's way of telling the athlete that something abnormal is happening within the area. It is the body's verbalization of injury and is the body's means of communicating to the athlete that continuance of the activity may produce damage. For athletes who are impatient and eager to return to participation, this is often a difficult concept to realize. They must heed what their body is telling



PEGGY HOUGLUM, A.T.,C.

Head Women's Trainer, Indiana State University, Terre Haute, Indiana; B.S., degree from the University of Minnesota, March, 1971; M.S. degree from Indiana State University, August, 1975. Previously worked at Sister Kenny Rehabilitation Institute, Minneapolis, and self-employed in the Minneapolis-St. Paul area.

them. A willingness to work hard is certainly a prerequisite to a successful rehabilitation program, but working beyond limits of pain will only retard the rehabilitative process. If an exercise results in residual pain that continues from one exercise session to the next the athlete should discontinue that exercise until a later time in the program when this pain is not produced.

The third principle is consistency. In order to be effective, a rehabilitation program must be religiously followed. Specific times should be set aside each day and specific exercises and routines must be performed.

The natural rate of progress the author has observed with most persons on a rehabilitation program begins with a relatively rapid improvement phase in strength. In the second phase there is a slowing or tapering of the improvement rate. The third and final phase consists of the progression towards a plateau state where minimal or no progress is made in strength. (Figure 1) This rate of progression is especially significant in individuals whose strength of the injured part is far lower than that of the non-injured counterpart. These observations are in agreement with the experimental findings of Muller and Rohmert (18).

It should be noted that although significant gains in other factors such as coordination may be occurring during the plateau stage of strength, most athletes measure their progress in terms of gains in strength. This becomes an important consideration for their psychological well-being during their rehabilitation program.

Because of the psychological considerations and the strength development factor itself, when the athletes are in phase one of their rehabilitation development progression, an exercise routine can be implemented twice a day. As they improve and come closer to their final goals, a once a day exercise program should be sufficient. This reduction should coincide with the athlete's entrance into phase two when the rate of improvement begins to decelerate. Reducing the routine to one formal exercise program daily is instituted for two reasons: 1) It will help to minimize the athlete's chances of becoming bored and discontented with the program; and 2) this author has found no personal evidence or evidence in the literature to indicate that exercising isotonically more than one a day during this phase produces any significant physical benefits to the athlete. When they reach their

plateau and the injured area returns to normal, the rehabilitation program is completed. At this point the athlete can advance to a one day a week program to maintain the strength that has been achieved (10,14,17).

Consistency also involves performing all the exercises faithfully and correctly. If irregularity and substitution are allowed, the maximal benefits of the rehabilitation program will not occur. Like the dieter attempting to lose weight, progress will result only if the individual is consistent and faithful to the program. The importance of performing the exercises correctly must be realized by the athletic trainer and impressed upon the athlete.

The fourth principle is that the athletic trainer must progress the program at the athlete's individual rate. Each athlete is different and will respond differently to the same program according to their own capabilities. Not accounting for psychological variances, the rate of progression will be directly proportional to the individual's physical response and ability. It is impractical to expect one athlete to attain the same level of development at the same time as another athlete. Even assuming that their problems are identical, their rate of progression should be expected to vary. Their courses may follow the same path, but they will likely travel the path at different speeds (4,11).

The fifth principle is that specific physiological factors are emphasized in sequential order. Whenever an injury occurs there are certain physiological factors that become reduced because of either the injury itself or the period of inactivity

following the injury. They must be re-established if the athlete is to safely return to sports participation. These physiological factors are normal flexibility, strength, endurance, and coordination (11, 14). "Normal" is individually determined and based on comparisons made between the injured part and its non-injured counterpart.

Although exercises for more than one of these physiological factors are included throughout the rehabilitation program, certain physiological factors must be emphasized at different times within the program. For example, during a specific period of the program, increasing strength may be the primary objective, although other exercises that are designed to increase flexibility or others used to increase endurance are also incorporated into the program. The sequence of emphasis is first, flexibility; second, strength; third, endurance; and fourth, coordination. Each serves as a foundation and stepping stone on which the following factor may proceed. (Figure 2)

FLEXIBILITY

Before any other factor, the mobility of an injured joint or the length of an injured muscle must be regained first. It is not feasible for a part that does not have full range of motion to be strengthened when its strength is going to be effective through only a fraction of the normal range of motion. Of what benefit is it to a shot putter if he is able to bench press 600 pounds but can move the elbow through only 80% of motion? This example is an exaggeration, but

Figure One
TYPICAL PROGRESSION RATE DURING
A REHABILITATION PROGRAM

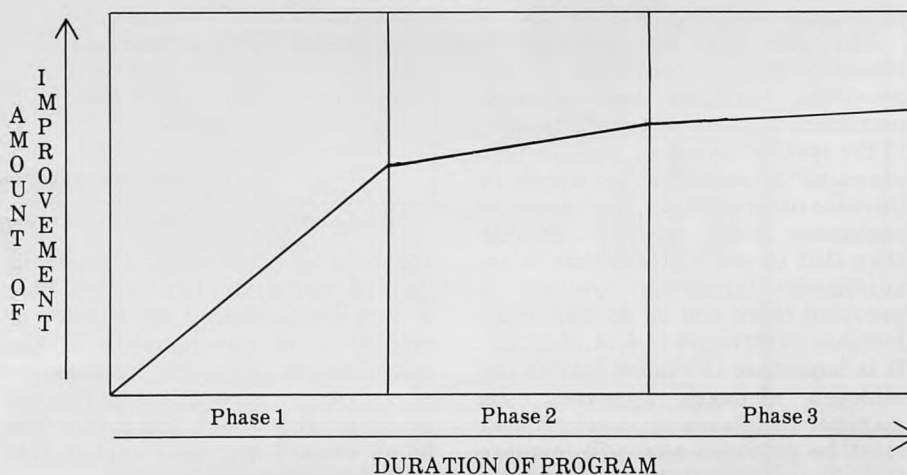
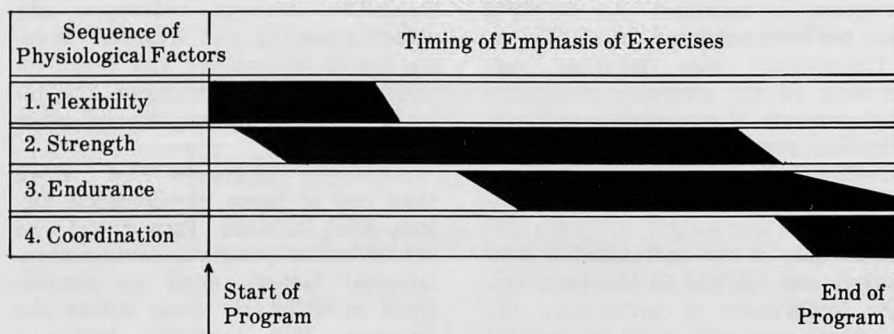


Figure 2
SUGGESTED SEQUENCE OF PHYSIOLOGICAL FACTORS
AND
TIMING OF EMPHASIS OF EXERCISES
IN A REHABILITATION PROGRAM



it serves to demonstrate the point that without full range of motion an athlete is unable to perform necessary functions involved in his or her sport. The first physiological factor an athlete must achieve is flexibility. Without the firm foundation of normal flexibility, the other factors of strength, endurance and coordination will be sufficiently reduced in their effectiveness; if an injured part has less than its full flexibility, the athlete will be unable to develop normal strength, endurance and coordination of that part and, therefore, will be unable to participate safely or optimally.

STRENGTH

When the athlete begins to approach normal flexibility, emphasis is then directed to regaining the athlete's strength. Either because of the injury itself or because of the period of relative inactivity following the injury, the strength of the injured part is reduced but must be restored before the athlete may safely return to full participation. Without good strength to protect and reinforce the area, an athlete is a prime candidate for re-injury. Strength, therefore, must be increased to act as a safeguard against repeated episodes of the same problem.

The only way an increase in strength can be obtained is by providing exercises that produce maximum or near-maximum tension in the specific muscle or muscles that surround the area. In other words, to increase one's strength, work loads or resistance levels must be greater than that to which the athlete is accustomed. Unless an overload is provided there will be no significant increase in strength (4,6,11,13,14,22). It is important to realize that as the athlete's strength improves, the maximal resistance or overload that must be provided also will increase (12). To continually provide for an

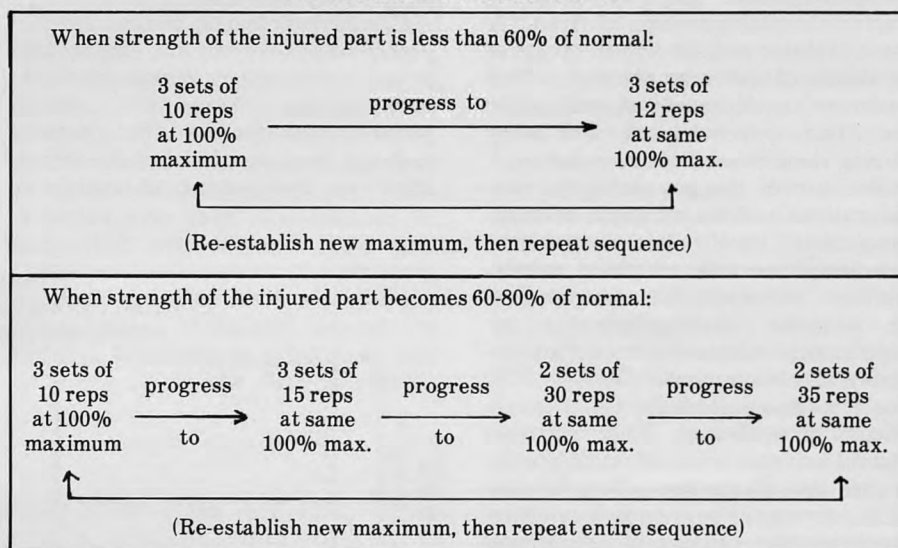
overload, the maximal resistance must be periodically re-evaluated and re-established. In the beginning phase of the program, these changes in maximal resistance will be more frequent than toward the second stage when the athlete's progress begins to taper.

ENDURANCE

Strength and endurance are directly related (2,3,4,8,9,14,17). Therefore, while athletes work to regain strength, there is also some advancement in their endurance level. As the athlete's strength begins to reach normal levels, however, em-

Initially, to build strength, the athlete is put on a program of three sets of ten repetitions at maximum resistance. When the athlete is able to perform twelve repetitions in each set, the maximum resistance is increased and the athlete returns to ten repetitions per set. All exercise sessions are preceded by a single set of five repetitions at 50% of the maximum resistance to serve as a warm-up for muscular coordination in the activity. When the maximum weight that the part is able to resist is equal to approximately 60-80% of normal strength, depending on the part being rehabilitated and the individual, the maximum resistance is kept the same until the athlete is able to perform three sets of 15 repetitions. From that sequence, the athlete progresses to two sets of 30 repetitions. Finally, when two sets of 35 repetitions can be performed, the amount of resistance is increased and the entire sequence is then repeated until normal strength and endurance are achieved. (Figure 3) The author feels this system works well. As the athlete's strength begins to plateau and the risk of discouragement increases, their interests and emphasis are converted from strength to endurance, yet an increase in both is being achieved.

Figure 3
EXAMPLE OF A STRENGTH-ENDURANCE
REHABILITATION PROGRAM*



*Each exercise session begins with one warm-up set of 5 repetitions at 50% maximum.

phasis is directed toward attaining their normal levels of endurance. This is done by increasing the number of repetitions of the exercises in the rehabilitation program. An example of the strength-to-endurance program with which the author has found success may best explain this procedure.

The final factor, coordination, is related to both strength and endurance. Just as strength and endurance are reduced by inactivity, so is coordination (14). Coordination is further related to strength in that as strength increases there are also improvements made in coordination (16).

To develop coordination most effectively, however, in the final stages of the rehabilitation program, emphasis is switched to coordination. Exercises designed to improve the execution of skills are included in the program at this point. These exercises are specific to the athlete's sport and to the position played within that sport. For example, a baseball or softball outfielder may begin activities such as throwing long and short distances, fielding, and hitting.

CONCLUSION

The goal of any athletic rehabilitation program should be to return the athletes to sports participation with the physical sturdiness and psychological readiness that is necessary for them to play the very best that they are able without fear of re-injury to the rehabilitated part.

Exercise is a modality. Just as with any other modality at an athletic trainer's disposal, it may be of minimal or maximal benefit to the athlete. How effective a rehabilitation program is will be determined, to a great extent, by how skillfully the athletic trainer applies this modality. The athlete is the individual who performs all the exercises and physical exertion, but it is the trainer's knowledge, skill, and finesse that is the key to a successful rehabilitation program.●

BIBLIOGRAPHY

- Behnke, R. "Cryotherapy and Vaso-dilatation," *Athletic Training*. 8:106-110, September 1973.
- Clarke, D.H. *Exercise Physiology*. Englewood Cliffs, N.J. Prentice-Hall, Inc., 1975.
- Clarke, D.H. and Stull, G.A. "Endurance Training as a Determinant of Strength and Fatigability," *Research Quarterly*. 41: 19-26, 1970.
- deVries, H.A. *Physiology of Exercise*. Dubuque, Iowa: W.C. Brown Co., 1974.
- Downey, J.A. "Physiological Effects of Heat and Cold," *Physical Therapy*. 44:713-717, August, 1964.
- Downey, J.A., and Darling, R.C. *Physiological Basis of Rehabilitation Medicine*. Philadelphia: W.B. Saunders, 1971.
- Edholm, O.G., Fox, R.H., Macpherson, R.K. "The Effect of Body Heating on the Circulation in Skin and Muscle," *Journal of Physiology*. 134: 612-619, 1956.
- Hellebrandt, F.A., and Houtz, S.J. "Mechanisms of Muscle Training in Man: Experimental Demonstration of the Overload Principle," *Physical Therapy Review*. 36: 371-383, 1956.

- Jensen, C.R., and Fisher, A.G. *Scientific Basis of Athletic Conditioning*. Philadelphia: Lea and Febiger, 1972.
- Karpovich, P.V. *Physiology of Muscular Activity*. Philadelphia: W.B. Saunders, 1966.
- Klafs, C.E. and Arnhiem, D.D. *Modern Principles of Athletic Training*. St. Louis: C.V. Mosby, 1963.
- Knippling, V.H. "Sports in Medicine," *Therapeutic Exercise*, ed. Signey Licht, New Haven, Conn.: Elizabeth Licht, 1965, pp. 354-374.
- Kottke, F.J. "Therapeutic Exercise" Prepared for Theory of Therapeutic Exercise lecture series. University of Minnesota, School of Medical Sciences, Department of Physical Therapy, 1969, p. 139. (mimeographed.)
- Kottke, F.H., "Therapeutic Exercise" *Handbook of Physical Medicine and Rehabilitation*, ed. F.H. Kursen, F.J. Kottke, and P.M. Ellwood. Philadelphia: W.B. Saunders, 1968, pp. 365-406.
- Landen, B.R. "Heat or Cold for the Relief of Low Back Pain?" *Physical Therapy*. 47:11-26-1138, 1967.
- Masley, J.W., Hairabedian, A., and Donaldson, D.N.: "Weight Training in Relation to Strength, Speed, and Coordination," *Research Quarterly*. 24: 308-315, 1953.
- Mathews, D.K., and Fox, E.L. *The Physiological Basis of Physical Education and Athletics*. Philadelphia: W.B. Saunders, 1976.
- Mueller, E.A., and Rohmert, W. "Die Geschwindigkeit der Muskelkraft-Zunahme bei isometrischem Training." *Internationale Zeitschrift fur Angewandte Physiologie*. 19: 403-419, 1963.
- Murphy, A.J. "The Physiological Effects of Cold Application," *Physical Therapy Review*. 40: 112-115, 1960.
- Olson, J.A., and Stravino, V.D. "A Review of Cryotherapy," *Physical Therapy*. 52: 840-853, August, 1972.
- Perkins, G. "Rest and Movement," *Journal of Bone and Joint Surgery*. 35B: 521-539, November, 1953.
- Schram, D.A. "Resistance Exercises," *Therapeutic Exercise*, ed. Sidney Licht. New Haven, Conn.: Elizabeth Licht, 1965, pp. 296-306.

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(LETTERS TO THE EDITOR, from page 8)

of our own volition, apply what we exemplify to the pressing areas of our own profession.

Get involved, that is truly **WHAT YOU CAN DO.**

Sincerely,

Bill Harmon
A.T.,C.
Mt. San Antonio
College
Walnut, California

Dear Editor:

Athletic training has taken some giant strides in the past few years. Now in our efforts to continue this growth in stature and numbers it appears that we are approaching another crossroad that will require action.

Each year for the past few years the number of school age children has been approaching a stable number.

Concomitantly the number of teachers required has also been stabilizing. If athletic training is to become an integral part of the educational process then we - the athletic trainers - must demonstrate our value to the total school program. In no way do I mean to imply that we must devote our entire time or efforts to the school, but we must demonstrate through our knowledge and skills our value to the school system.

Now is the time to approach the administrators of athletic programs as professionals and "sell" our profession to them. In order to accomplish this the following things must be done:

We must go to the physicians in the community and insist on their active support to get fulltime, certified athletic trainers at the high school level. And, yes, even at the college level in many cases. We must point out the preventive medicine aspects of having a qualified athletic trainer in each school system. We must point

out to the physicians the time it will save them to have a qualified health professional in the athletic program.

Parents must be made aware that there are qualified, professional athletic trainers available that can and will help reduce the number of disabling and crippling injuries that occur at the high school level. We *must* ask parents for their support in obtaining fulltime athletic trainers at both the high school and college level.

We as athletic trainers must become actively involved, if we want our profession to grow! It is time for those of us presently in athletic training to demand that those entering the profession be fully qualified, capable professionals and leaders. They must be people with whom parents and physicians can entrust the lives of their children and patients. As we make these demands we must be willing to give those selected to enter the profession our complete support.

It is time to make a decision!

Sincerely,

Bill Flentje, A.T.,C.
University of
Missouri at Rolla

Dear Editor:

Do you or any of the NATA membership know of the availability of a current bibliography on films pertaining to Athletic Training and/or Sports Medicine? If so, I'd appreciate very much your sending me the contact I need to acquire such a listing.

Thank you very much!

Sincerely,

Greg Vergamini,
R.P.T., A.T.,C.
Keene State College

Dear Greg,

Gordon Stoddard, at the University of Wisconsin (Madison), is the chairman of our Audio-Visual Aids Committee. I'm sure he would be happy to help you.

Sincerely,
Editor

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(TIPS FROM THE FIELD, from page 22)

protection the shoulder pad must be attractive. Therefore, if the pads feature light weight, flexibility, and are form fitting, the players will be more apt to wear them.

While considering the overall protection provided by the shoulder pads, basic concern is with protecting the top of the shoulders, not the prevention of a separation. Generally the mechanism of injury for a shoulder separation is a direct blow from the side. It would take a canilever shoulder pad to prevent

such an injury. This is not very practical for the game of lacrosse.

The importance of injury prevention has already been discussed, but if a shoulder injury occurs, especially a separation, what is the most beneficial means of protection? After the injury has healed sufficiently, a football quarterback shoulder pad with the top flaps removed will provide the necessary protection. The removal of the top flap lessens the bulk of the pad and appears more flexible to the athlete.

As with the other sports today, the athletes are bigger, faster and more aggressive. It should be suggested to the proper officials that it be made mandatory that all lacrosse players be required to wear shoulder pads. The pads discussed in this article offer excellent protection. They give added protection in the areas of the acromion, clavicle and sternum. Many of the lacrosse players at the University of Maryland Baltimore County wear these pads both during regular season and summer league play.

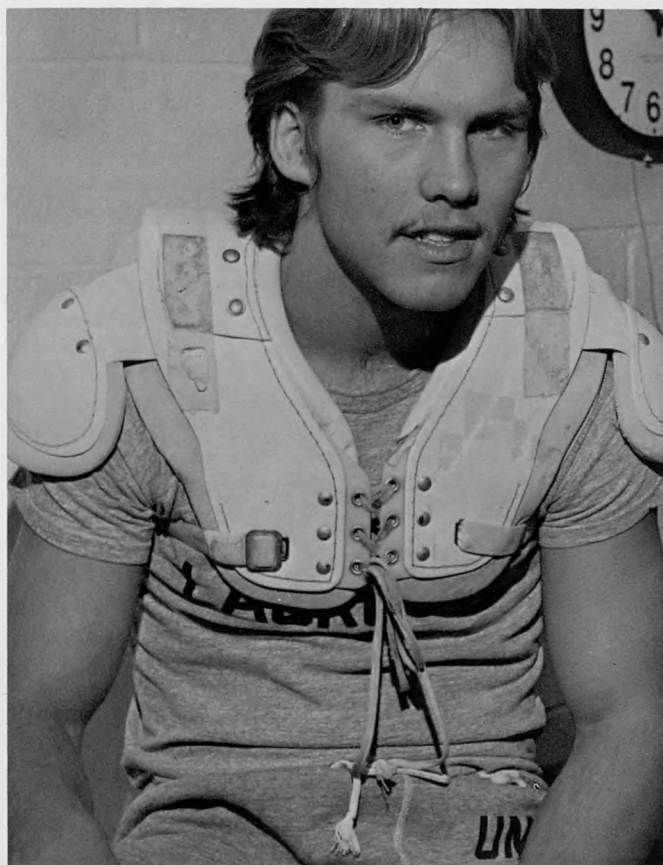


FIGURE 3. Quarterback pad with the top flaps removed.

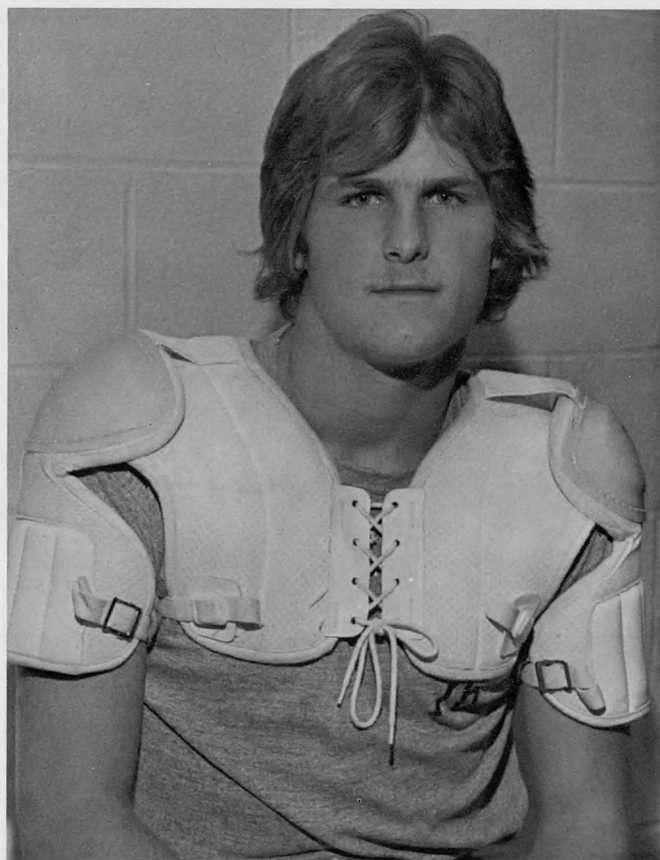
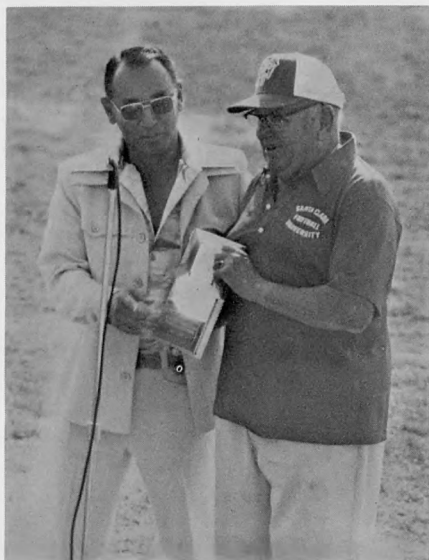


FIGURE 4. Hockey shoulder pad that provides light weight, flexibility, foam fitting and protection with plastic pads well placed to protect the point of the shoulder.

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



Sam Nasko presents Henry Schmidt (right) an award for 50 years of service at Santa Clara University.

*Henry Schmidt
Celebrates SCU
Golden Jubilee*

Henry Schmidt logged one of his many "firsts" this season when he started his 50th season as head Santa Clara University football trainer.

Schmitt, as he is known to his thousands of friends all over the country, is the only trainer in the history of NCAA sports to serve for 50 years as athletic trainer at one university.

*Academic
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The Commonwealth's Exceptional Academic Service Award was presented to Phillip B. Donley (right), Associate Professor of Health and Physical Education at West Chester State College, by Secretary of Education, John C. Pittenger, at a banquet held on November 18, 1976, in Harrisburg, Pa.

Mr. Donley's award was given for outstanding dedication to the health and safety of student athletes. He designed and implemented, in 1970, a coeducational athletic training education program which meets the approval of the National Athletic Trainers Association. It enables graduates to qualify to take the National Certification Exam and has produced 46 certified athletic trainers since 1972.

A graduate of West Virginia University, where he also received his M.S., Mr. Donley received his Certificate in Physical Therapy from D.T. Watson School of Physiatrics. He is a member of the National Athletic Trainers Association's Professional Education Committee and Chairman of the National Athletic Trainers Association's Approved Program Director's council. He has been a member of the American Physical Therapy Association since 1957 and is a charter member of the Section on Sports Medicine. He came to the college in 1965 and resides in West Chester with his family.

In Memoriam:
THOMAS J. SHEEHAN

Thomas J. Sheehan, Sr. died September 14th, 1976, at the age of 63. Tom retired from being Rensselaer Polytechnic Institute head trainer in the fall of 1974, as his son Tom, Jr., took over the duties of head trainer of the school. Tom was the R.P.I. head trainer for twenty-seven years, teaching physical education as well as being the school's fulltime trainer.

Tom was elected into the R.P.I. Athletic Hall of Fame and was inducted in the Hall in late February of 1976 as he is the only non-athlete who is a member of the 55-member Hall of

Fame. He was an associate professor of physical education coming to R.P.I. in 1947. Graduated from Flushing H.S. in 1932; then went on to New York University where he received his bachelor of science degree in 1936. He attended the N.Y.U. summer school for his master's degree, receiving his master's degree in 1948. In 1974 when he left the trainer's duties to son, Tom, he went for one year with the school's infirmary for the less vigorous work. He was a member of the American Physical Education Association, the E.A.T.A.

and the N.A.T.A. He was the president of E.A.T.A. in 1949, 1950 and 1951 and was also the Association's treasurer for four years. He was one of the founders of the E.A.T.A. In the spring of 1972, he was given the Cramer Award for Distinguished Service by the E.A.T.A., which consists of 1100 trainers on the high school, college and pro levels. He represented R.P.I. three times at the North-South All-Star lacrosse game as a trainer for the North team and often helped area high school athletes without charge.

Guide to Contributors

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

1. Eight copies of the manuscript should be forwarded to the editor and each page typewritten on one side of 8 1/2 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.

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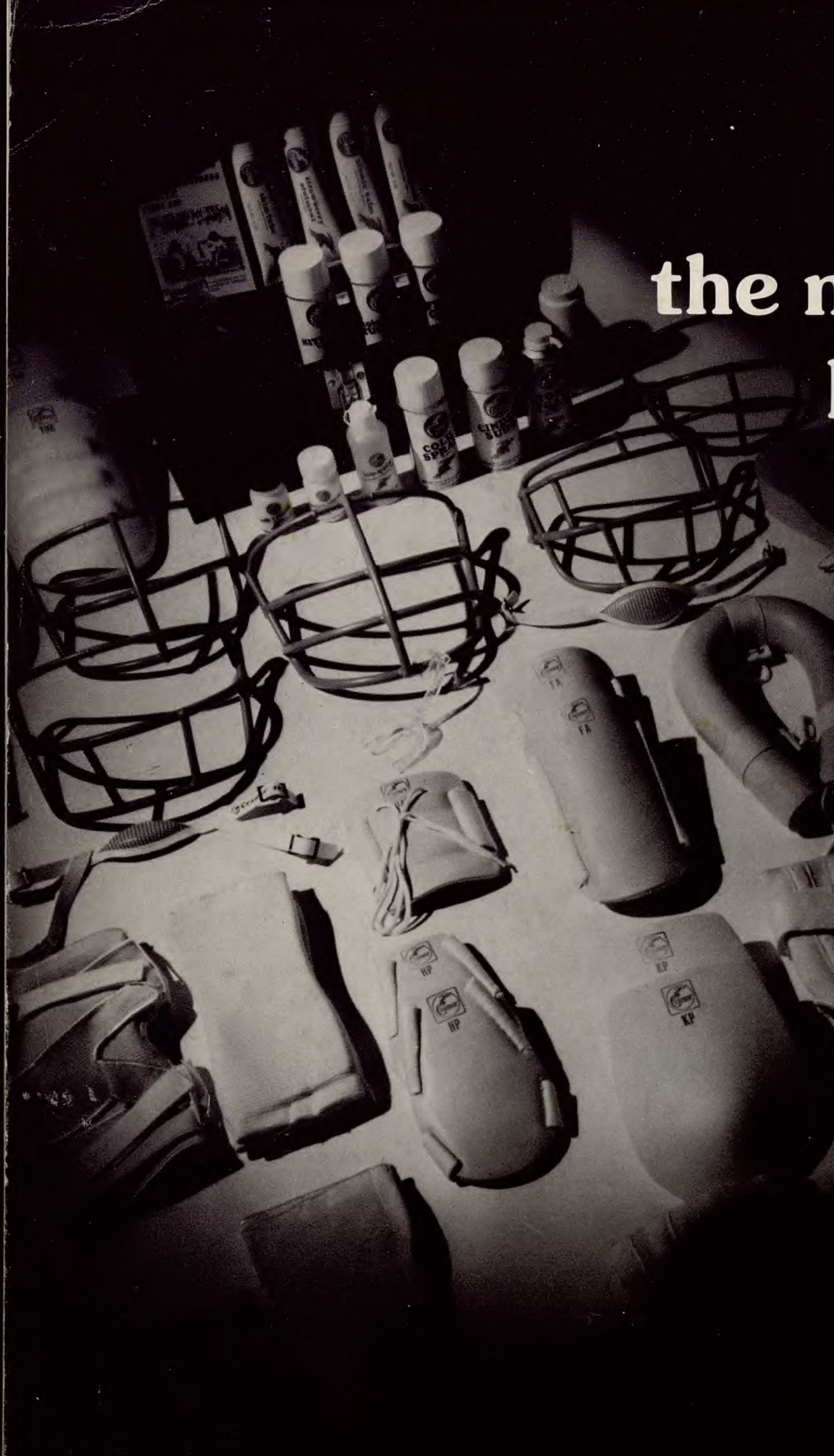
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