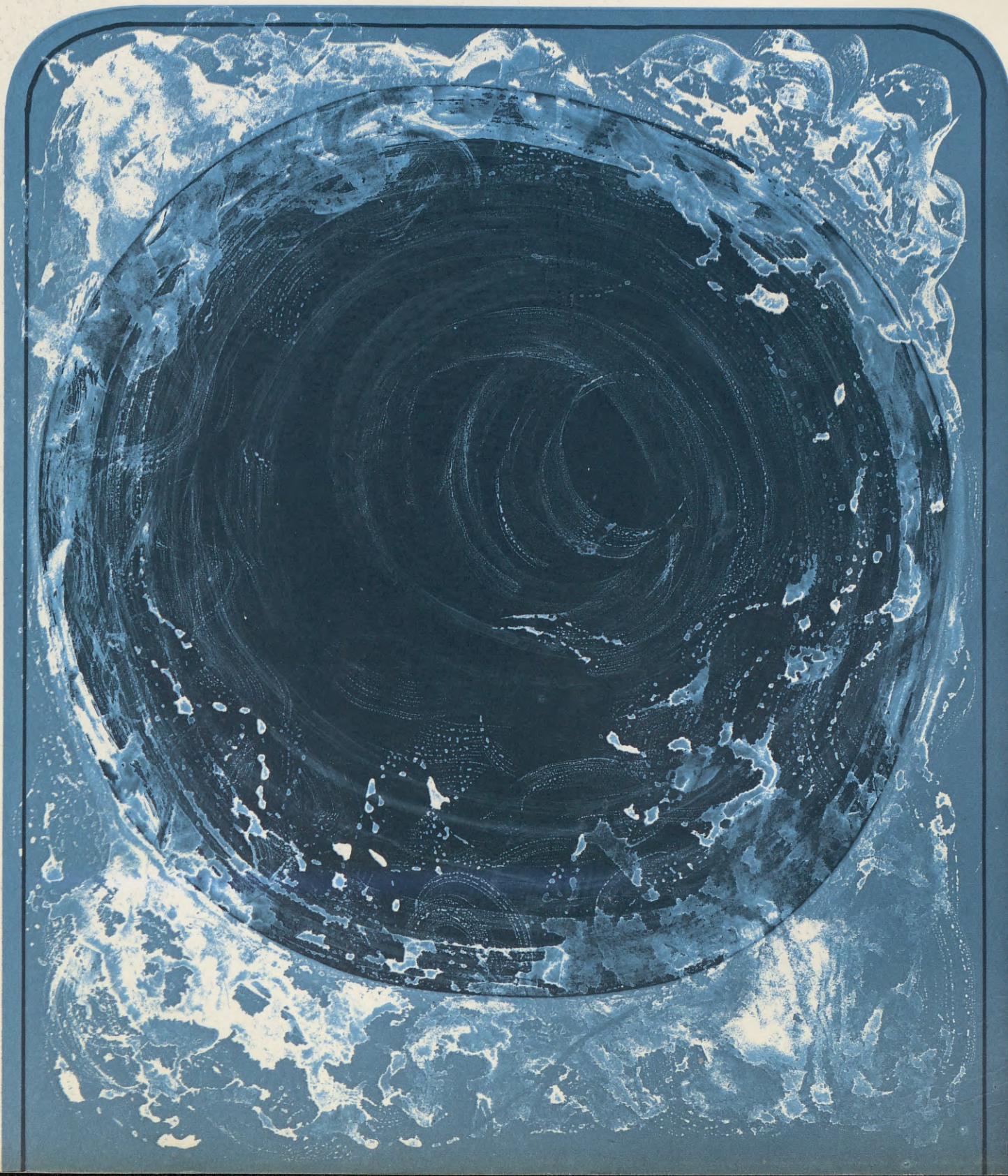


THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

VOLUME 6

NUMBER 1

SPRING 1971



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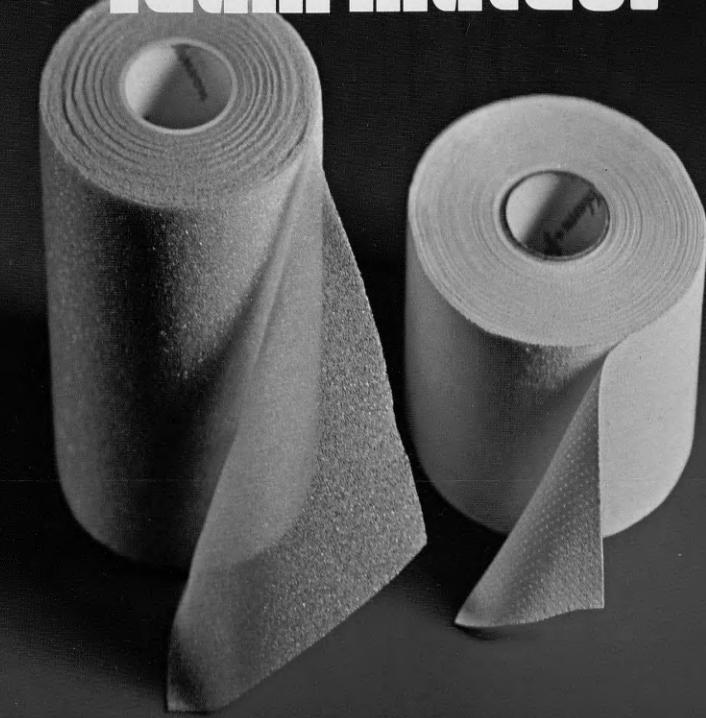
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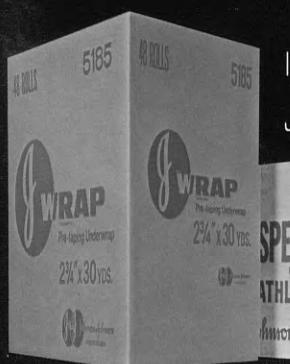
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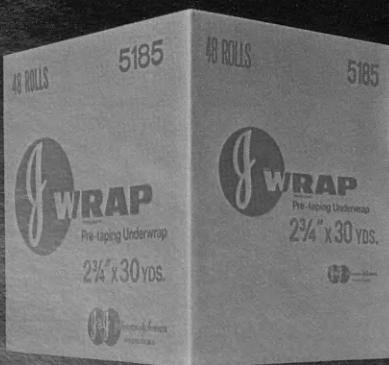
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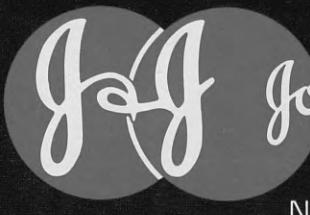
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The *Journal of the National Athletic Trainers Association* is published quarterly by the National Athletic Trainers Association, a non-profit organization, 3315 South Street, Lafayette, Indiana 47904.

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Second class postage paid at Lafayette, Indiana 47904.

The *Journal* goes to members of the Association as a part of their membership dues of

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\$25; advisory members pay \$10.00 of which \$3.00 is for the *Journal* and student members pay \$5.00, \$3.00 of which is for the *Journal*.

The views and opinions expressed in *The Journal of the National Athletic Trainers Association* are those of the author and not necessarily those of the National Athletic Trainers Association.

CHANGE OF ADDRESS may be made by sending old address and new address with zip code number. Instructions should state whether change is temporary or permanent.

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SUBMITTING MANUSCRIPTS — Information concerning manuscripts for publication in the *Journal* appears under "Guide for Contributors" in this issue.

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The Use and Misuse of Drugs in Sports

STATEMENT OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

Issued January 20, 1971

Under authority of, and by direction of, the Board of Directors of the National Athletic Trainers Association (NATA), the following statement of policy is issued:

The question of use and misuse of drugs in sports has received and undoubtedly will continue to receive considerable public attention and journalistic treatment. Since the role of the Athletic Trainer falls within this question, the National Athletic Trainers Association desires to emphasize its complete condemnation of the use of ergogenic aids—particularly stimulants, depressants, and anabolic steroids—in attempts to gain advantage in sports performances.

The misuse and abuse of drugs by an athlete not only presents to him potentially significant hazards, for dubious gains—it also raises a cloud of controversy over legitimate and constructive use of medications and drugs in athletics. It further produces, especially among the emulating public, misconceptions instead of insights into sports—demonstrated principles of healthful living. There is no place in athletics for the substitution of drugs for hard work and the healthy habits of proper rest and proper diet.

The NATA reaffirms its stand that it will cooperate with all agencies and organizations who are attempting, through research, to develop techniques of monitoring athletes in competition. Hopefully this will not become a necessity. We feel that accurate, meaningful education of athletes and their leaders, relying on ethical instead of legal conduct for controls, is a much better objective and more realistic solution to the problem. To this end, the NATA has utilized various means available to it as an organization:

In 1962, NATA endorsed the AMA's Bill of Rights for the Athlete, which is anchored on responsible health supervision of athletics. The NATA maintains active representation on the Joint Commission on Competitive Safeguards and Medical Aspects of Sports, which recommends rule changes and additions concerning the health and safety of the high school and collegiate athlete.

The NATA currently is co-sponsoring with the AMA and the Athletic Institute a manual on the fundamentals of athletic training, which is designed to help personnel in schools presently unable to obtain the services of a Certified Athletic Trainer.

The NATA Committee on Ethics has the function and duty to investigate any reported violation of ethical practices by an athletic trainer, which includes provision or use of drugs other than those required for therapeutic treatment and administered by or under the supervision of a physician. Any athletic trainer found guilty of violating these ethical practices will be subject to expulsion from the NATA and whatever further action the law provides.

The athletic trainer has been commended by the American Medical Association (House of Delegates Resolution, 1967) for his strategic professional role in protecting and promoting the health of active youth. The NATA re-pledges its ongoing professional preparation, continuing education, and cooperative liaison programs for serving this role effectively, with particular attention to drug education.

—Robert H. Gunn, President
National Athletic Trainers Assn.

"The Changing of the Guard"

This will be a first and a last, my first editorial of 1971 and my last editorial as Executive Director. By the time this issue of the *Journal* reaches you, the Board will have met in Houston and I hope a new Executive Director will be named, or at least be in the process of accepting the position. Since I am leaving the field of athletic training in February, I would like to prevail on your time for a while to speak out on athletic training as I have seen it, and hope to see it grow.

My first experience with athletic training came in 1947 when I began working with Wayne Anderson, (now retired) trainer for the Sacramento Baseball Club. From a beginning in organized baseball, I returned to school and had the good fortune to have some wonderful people give me guidance and help as I learned what athletic training is all about. Starting with Ore "Stub" Evans, at Olympic Junior College, gaining help and encouragement from the late "Clich" Clark, University of Washington, and the now retired Wilbur "Doc" Boehm, Washington State, and culminating with the excellent teaching I received from Dean Nesmith, University of Kansas, I was very fortunate to have had these fine men helping me along the way.

If I sound sentimental, please excuse it, as I'm coming to the point of the editorial. That point is that no matter how many schools we have, or how great a curriculum they offer, the people now active as Certified Athletic Trainers must continue to be the leaders, the guiding hands for the youngsters who are in need of help and experience. It is absolutely essential that each and every Athletic trainer takes the time to help any youngster who requests guidance. A letter answered or a few words spoken can mean a great deal to those who have an interest in our field of endeavor.

I'd like to reminisce a bit too, about the first Annual NATA meeting, where I had the great opportunity to meet the late Eddie Wojecki, the late Duke Wyre, Doctor Brashear, Chuck and Frank Cramer, Walter Booke, the late Bill Ferell, Whitey Gwynne, Jack Heppenstall, "Bud" Jorgenson, Frank Medina, Mickey O'Brien, Howard Waite, Ken Rawlinson, and Henry Schmidt to name as many as I can remember. What a thrill it was then, and it still excites

me when I remember how great it was being with these men and learning by listening. I will never forget the warmth of the friendly get-togethers at those early NATA meetings. Unfortunately, our Annual Meetings have grown so big in recent years that some of the closeness has been lost. Perhaps some of this feeling can be regained if each of us will try to spend a small portion of time visiting with one another, exchanging small-talk, getting to know trainers from all across the country. I know I'll try, I hope each of you will too.

Probably the proudest moments of my association with the NATA came with the completion of the re-organization, the acceptance of the Certification and the recognition of the NATA by the AMA. All of these things and many others that have transpired in the past ten years have made us all realize that the NATA has helped the athletic trainer achieve a high degree of professional stature. I believe firmly that it is now up to the individual athletic trainer not only to appreciate this stature, but to maintain it, by keeping the standards of athletic training at the highest level.

To attain even greater stature in the eyes of our peers, we must all constantly be aware, do our work, practice our profession, that our standards are high and we want them to stay that way. I have always been extremely proud to be an athletic trainer; I believe all of us in this profession are proud of our work. Now, as I leave the post of Executive Director and the active practice of athletic training, I carry with me a feeling of pride at having been an athletic trainer, a feeling that will continue to be uppermost in my thoughts for the rest of my life.

My sincere thanks and deepest appreciation to you all for your help, your cooperation, and especially your friendship.

—Jack Rockwell

A NOTE FROM AN ATHLETIC TRAINER

*Comment by Otho Davis,
Executive Director, NATA*

It is with sincere gratitude and profound humility that I have accepted this opportunity to serve the National Athletic Trainers Association as its

Executive Director. I appreciate the expression of confidence that the Board of Directors has conferred upon me, and consider it a very high honor. I fully realize that this position carries with it many responsibilities, and I will try to discharge them with credit to myself and to the satisfaction of all of you. I am certain that it will be a rewarding experience to work closely with men of such outstanding qualities as our membership.

A famous man once said, "Success is due not to the genius of the few, but to the faithfulness of the many." This is true of our organization. It needs the enthusiastic participation and cooperation of each member to fulfill the duties necessary for continuing the successful programs which Pinky Newell, Jack Rockwell and all board members so ably initiated.

The National Office always is open to you and welcomes your ideas. Do not hesitate to contact your District Director, for he also desires your suggestions for the betterment of any phase of our program.

I take great pride in being associated with the NATA. Please join me in moving forward in a proud and successful National Athletic Trainers Association.

*Comment by Bobby Gunn,
President, NATA*

My fellow athletic trainers, I would like to open this note with that title and salutation. I am proud of the title of athletic trainer. We have had much discussion in the past about a change in title or designation of our profession. Some of the thought has been that a change from "athletic trainer" to another name would tend to elevate us in stature, and lend more prestige to our field. I believe that we will build our image and earn the respect we desire as individuals and as a profession through continued efforts and education.

Through the work of men like Wojecki, Biggs, Newell, Sullivan, Medina, Rockwell, McLean, Miller, and many others, the profession of athletic training has developed sound standards of education, ethics, and performance which have earned acceptance by our peers. By no means have we achieved our goals. We will never reach the point where further achievement and improvement are not necessary and imperative. Desire for positive change is the very essence of growth.

We have been blessed with great leadership in the past. You, as well as I, know that we would not be where we are today, on the threshold of our most important years, were it not for the dedication, devotion, and hard work of William Newell and Jack Rockwell. Frankly, the only way we can possibly repay these two men for their incomparable contributions to athletic training is to continue their work with the same tenacity and thoroughness that they have shown. This is one reason why your Board of Directors appointed Otho Davis as your new Executive Director. They believe that he will not only continue the work of Pinky and Jack, he will amplify and expand their efforts.

There is absolutely no doubt in my mind that our Board of Directors, our Division Directors, our Committee Chairmen, and our membership as a whole will give Otho their complete cooperation and support. This means work. This means participation—by all of us. It will simply not suffice to pay your dues and then feel that you have fulfilled your obligation to the NATA. It will not suffice to be a good competent athletic trainer for your institution or club, although that is your primary obligation. You must become actively involved in the work of the NATA. You must willingly and enthusiastically accept responsibility on the district or national level to promote the continued growth and development of athletic training.

Again, may I say that there are no words available to express our gratitude for the leadership Jack Rockwell has given us these past years. We will miss him as an athletic trainer and as our Executive Director, but will happily continue the friendship and close association of many years.

We welcome our incoming Executive Director, Otho Davis. We are fortunate to have a man of his capabilities as our administrative leader. Our Board of Directors signified their belief in him and willingness to work with him by his appointment. We must signify our approval and endorsement of their appointment by written and verbal notice to him of our desire to work for the NATA in any capacity.

We are starting a new year. We are also entering into a new era of growth and expansion of athletic training. By our efforts it will progress. By our apathy it will fail. The work of athletic training is too important to be allowed to fail.

The Effects of a Season of Basketball on Body Fat of Basketball Players

by George S. Wanamaker
Benjamin Louis
Bradley L. Rothermel
Charles B. Corbin

There is a consensus among coaches and trainers that a high level of physical fitness is desirable for all athletic teams. Some sports require emphasis on different fitness aspects (i.e. endurance, strength, agility, etc.) but most agree that varsity athletes should be average or above in all fitness aspects. While the trainer and coach may emphasize certain fitness aspects, the most notable of which is strength and endurance, little attention may be paid to the "fatness" of the athlete. No doubt, the extremely fat athlete will draw attention, but others weighing "normal" will be declared fit. The discerning trainer will want to study the "fatness" of his athletes and the effects of this state on athletic performance. This study was conducted to help coaches and trainers better understand the effects of a season of basketball on the fatness of basketball players.

REVIEW OF THE LITERATURE

In a study of 26 basketball and hockey players, Thompson, et. al.⁵ found that although weight did not change over a season of "strenuous training," there were significant decreases in skinfold thicknesses as well as decreases in the percentage of body fat among athletes. Further the researchers suggested a need for more research concerning changes in body fatness resulting from participation in sports programs.

In another study concerning the fatness of athletes, Welham and Behnke⁷ found that most of the 25 All-American athletes they studied were "overweight" according to height-weight charts and 17 of them would have been rejected for military service because of their excess weight as determined by a height-weight chart. These athletes were actually quite lean. In fact, eleven, of the 25 were considered as in "prime" physical condition.

More recently, Lamkin³ studied the fatness of the 1968 Cotton Bowl Championship team at Texas A&M University. While a few of the athletes were actually classified as obese, not one of the 27 first team players was obese. The average body fat percentage of the first team was nine percent, ten percent for the second team and the

average fat level for the third team was twelve percent. Lamkin also pointed out that endurance performance was significantly poorer among athletes with high levels of fatness as compared to lean athletes.

In another study, Lamkin⁴ found no significant changes in body fat across a season of football. Neither preseason drills nor actual participation during the season altered the fat level of the athletes. It is interesting, however, that the first and second teams differed significantly in fat level with the first team being the leaner.

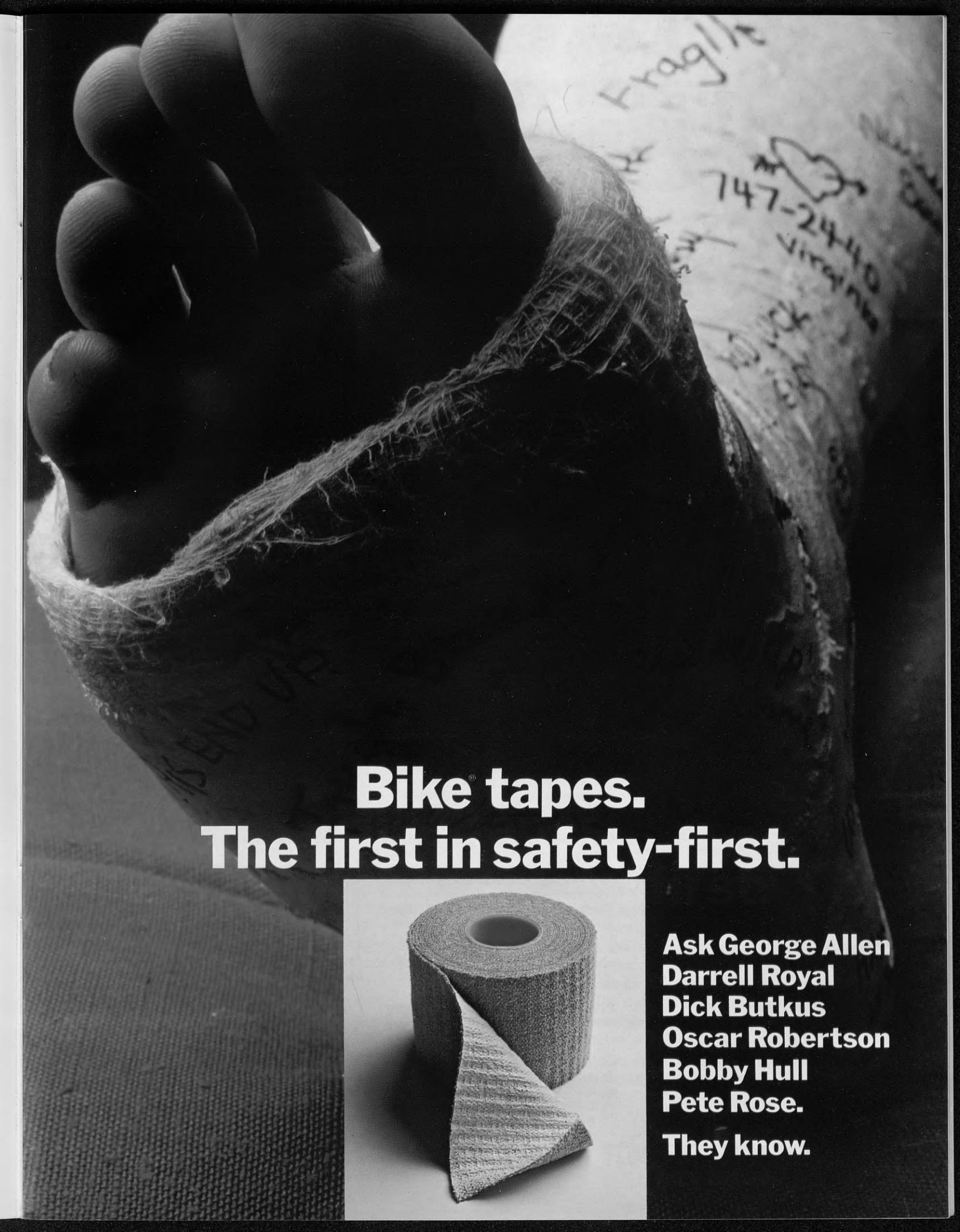
Corbin¹ summarizes the research done concerning the body composition of athletes suggesting that an excess of body fat can "reduce work efficiency, skill performance, dynamic health potential, and hasten fatigue." Since these factors are vitally related to successful performance in basketball, it would seem advisable to keep body fat to a minimum among basketball players. Hopefully, these players would be most fit and most lean at the end of the season when the importance of winning games is greatest.

It was the purpose of this study to ascertain the effects of a season of basketball (preseason training and regular season competition) on the estimated body composition of college basketball players.

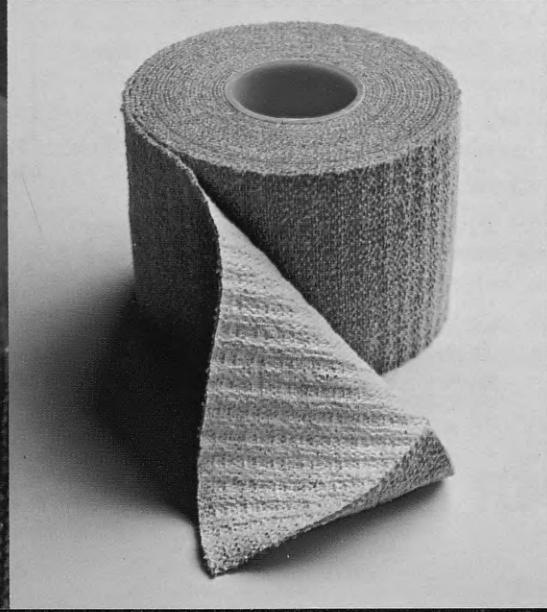
PROCEDURE

A total of forty-eight college men, between the ages of 17 and 22, served as subjects for the investigation. Sixteen varsity athletes from West Texas State University comprised experimental Group 1, 16 varsity and freshmen athletes from the University of Illinois (Champaign-Urbana) comprised experimental Group 2, and the control group consisted of 16 individuals randomly selected from freshmen through senior classes at the University of Illinois. In cases where more than 16 subjects were tested, 16 were randomly selected as subjects to insure equal numbers in each of the groups studied.

In an attempt to base the fatness of athletes on something more valid than height-weight charts, a skinfold procedure was used to determine per-



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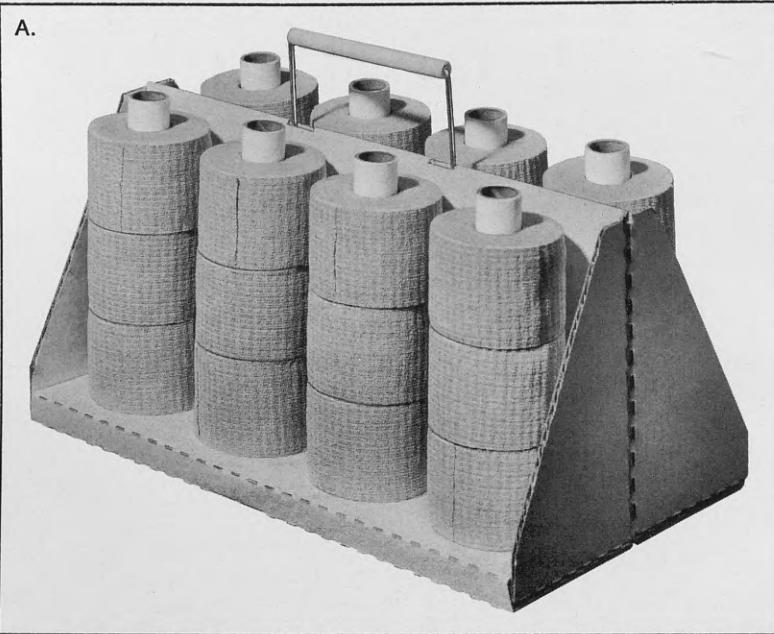


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TABLE 1 - MEANS OF PERCENTAGE BODY FAT FOR BASKETBALL PLAYERS

GROUP	PRETRAINING	PRESEASON	MIDSEASON	POST SEASON
CONTROLS	10.43%	10.40%	10.20%	9.93%
WTSU	11.01%	11.41%	13.78%	13.63%
ILLINOIS	9.23%	9.31%	7.51%	7.52%

cent of body fat of each athlete. Body composition estimates were made on all 48 subjects using the procedures of Sloan⁵ and Brozek, et al.² at four different times (test 1) pretraining, (test 2) preseason, (test 3) midseason, and (test 4) post season.

A "3 × 4" repeated measures analysis of variance was calculated to determine if: (1) mean differences existed from Test 1 to Test 4 for any one of the three groups, and (2) mean differences existed between the two experimental groups and the control, at any one testing period used in this study. Post F tests were conducted to determine between which groups differences existed. Differences were considered significant at the .05 level.

RESULTS

Mean scores for each of the three groups studied are presented in Figure 1. Group means are presented in Table 1. Statistical analysis revealed that there was no statistical difference ($F = .37$) between the three groups at any of the four testing times. The average for body fat content for the control group, the West Texas State players, and the Illinois athletes were statistically the same on all four tests. However, the statistical analysis (main effects $F = 4.12$) did reveal a significant increase in body fat content of WTSU athletes. WTSU athletes were fatter on Tests 3 and 4 than on Tests 1 and 2. Also the Illinois athletes showed lower fat levels at Tests 3 and 4 than at Tests 1 and 2. Control group fatness levels did not vary statistically from Test 1 to Test 4. There was significant interaction between groups and tests ($F = 11.87$).

DISCUSSION

Several important points for discussion are re-

vealed in Figure 1, especially in light of the statistical analysis presented above.

First, neither the experimental group nor the control changed from T_1 to T_2 . In other words, preseason training did not result in a change in body fat for the athletes studied. This is very interesting in view of the fact that this is the time of most intensive training and preparation for the upcoming season.

Secondly, the fact that differences did **not** exist at any time between means of the three groups indicates that the magnitude of change for experimental groups from T_1 and T_2 to T_3 and T_4 was not enough so that experimental and control groups were actually different in body fat content (this much difference could be expected by chance). In other words, the differences between the Illinois and WTSU groups (See Fig. 1) at midseason and post season could be expected by chance and are not necessarily reflective of real differences between groups.

The third point relates to differences in body fat levels within groups across the basketball season, namely between $T_1 - T_2$ and $T_3 - T_4$. The Illinois athletes got leaner and the WTSU athletes got fatter. Whether this change, without a difference between experimental and controls, is of major importance depends on the frame of reference of those making judgments. Coupled with the significant interaction (one or more groups changed differently across the season) it does seem justified to indicate that nature of the team and training type **does** reflect the extent to which body composition is altered.

In view of the data presented here and information presented in the previously cited research, it seems legitimate to speculate that the alteration in body fat levels of athletes depends on the starting body composition of the athletes, the

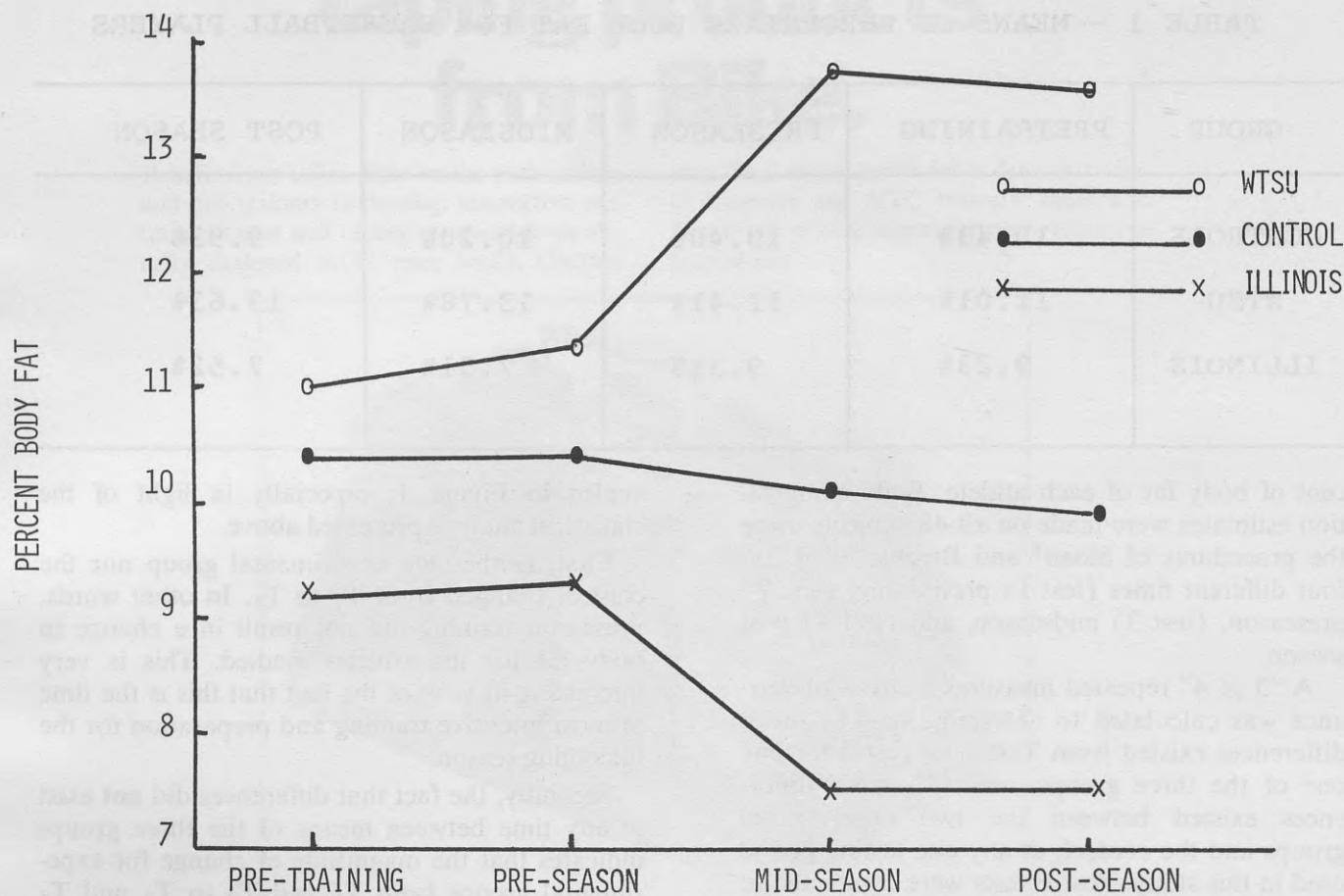


FIGURE 1 - PERCENTAGE OF BODY FAT AT VARIOUS STAGES
DURING A BASKETBALL SEASON

nature of the program, and the importance placed on the value of being lean.

It is most interesting that the "not so lean" athletes get fatter while the lean get leaner. It is also interesting to note that in certain types of programs emphasis is given to fitness during the preseason and then it is forgotten. Regardless of the findings of this study the following suggestions for coaches and trainers seem warranted:

1. Body fatness should be determined for all athletes as one aspect of the assessment of their readiness for performance. For details see Corbin¹.

2. A "desirable" level of fatness for each athlete should be established.

3. Programs should be established to achieve and maintain this level across the *entire* season.

4. Teams with exceptionally high fat levels at early season stages may have to make special efforts to achieve "desirable" fat levels at all stages of the season.

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Increasing Circulation—With Cold!

by A. G. Edwards, M.A.

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It has long been the feeling that the best method (if not the only one) of increasing circulation to a body part is through the application of heat. Only in recent years, and with work such as The Rehabilitation Center in Vallejo, California, is doing with ice, has this theory been questioned.

The penetrative effects of heat have been found to only reach a depth of one-sixteenth to one-eighth inch; whereas, the effects of temperature change with cold have been recorded to bone level.

A limb immersed in a bath at 105.8° F. showed subcutaneous temperature rise of 7.2° (93.2°-100.4° F.) in approximately twenty-five minutes and remained at that level for ninety minutes. A deep muscle temperature rise of only 1.8° (96.8°-98.6° F.) was reached in approximately thirty minutes and remained at that level for ninety minutes. A limb immersed in a bath at 59.0° F. showed a subcutaneous temperature drop of 27.0° (93.2°-66.2° F.) in thirty minutes, 32.4° (93.2-60.8° F.) in sixty minutes, and 36.0° (93.2°-57.2° F.) in ninety minutes. The deep muscle decrease in temperature was recorded at 21.6° (98.6°-77.0° F.) in thirty minutes, 28.8° (98.6°-69.8° F.) in sixty minutes, and 32.4° (98.6°-66.2° F.) in ninety minutes.¹

We can see by the preceding paragraph that the external application of cold is more penetrating and has greater effect on both subcutaneous and deep muscle tissue. Bierman and Friedlander in their study, "Penetrative Effects of Cold", show that cold penetrates more deeply than most forms of heat.²

If you now accept the hypothesis that cold is more penetrating and has a greater effect on tissue, then you must be asking yourself, "Is the effect beneficial to increasing circulation?" If cold is applied for a period of time ranging from ten to thirty minutes, there is a vasoconstriction and decreased blood flow. For a period of time ranging from thirty to sixty minutes after application of cold, however, there is a vasodilation allowing increased blood flow. It has been reported by Nicolette that warmth and redness have been seen for periods of sixty minutes after application of cold.³

Only during the application of heat are vasodilatation and increased blood flow present. Immediately upon the removal of the application of heat there is a reflex vasoconstriction, hence the increased blood flow is reduced. A reflex vasodilatation is the reaction to the removal of cold application. These reflex reactions are realized because of the protective mechanisms of the body. Dr. George Thosteson stated in his August 4, 1970 column in the Colorado Springs, Colo. Sun that "Your body diverts circulation in response to needs. For example, your face gets red in cold weather because more circulation is drawn to the exposed skin surface to warm them". All of us have experienced cold, red, throbbing ears after periods of cold exposure. Can you remember the long time that warmth could be felt in the ears and the throbbing of the blood flow through them?

The same physical changes that applications of heat produce, for only the length of application and for only one-sixteenth to one-eighth inch below the surface of the skin, are produced

throughout the subcutaneous and deep muscle tissue for thirty to sixty minutes, when cold applications are applied.

FASTER RESPONSE

A faster and more efficient response to the application of cold can also be attributed to the fact that the Krause (cold) sensory receptors are less deeply planted in the tissue and there are eight times more Krause receptors than Ruffini (hot) receptors.

A by-product to the increased blood flow through the application of cold is the local anesthesia produced. This allows for pain-free range of motion of the part. Thomas Gucker states, "Even a 100 per cent increase in muscle blood flow produced by heat is small compared with that resulting from activity produced by voluntary muscular contraction or even by electric stimulation".⁴

Other physical changes produced by increased blood flow are relaxation of muscle spasm, nutrition, healing, and the carrying off of waste and edema. Also, Downey points out that the rate of cell metabolism increases as the temperature increases. When cold is applied the cell metabolism decreases.⁵ One of the products of cell metabolism is lactic acid. Therefore, the application of heat to remove excess metabolites might in fact produce more unwanted lactic acid.

Mead and Knott report success in reducing spasticity by the use of cold applications in such conditions as quadriplegia, arthritis, and poliomyelitis.⁶ Viel found that patients that had cerebral vascular accidents, multiple sclerosis, and traumatic quadriplegia experienced relief from spasticity of the finger, wrist, and ankle flexor groups after cold applications.⁷ Hayden reported the early results of treatment of acute and painful skeletal muscular conditions with ice massage. In this program 1,000 patients were treated with ice massage. Eight hundred and fifty of the patients returned to military duty within one hour following treatment. Only three of this group required an advanced form of treatment.⁸

Grant later reported a continuation of Hayden's work. Seven thousand patients were treated with ice massage. He states that satisfactory results were achieved in over 80 percent of the patients and that less than five percent of the patients required more than six treatments.⁹ Ju-

venal has reported success in using Grant's method of ice massage in the treatment of athletic injuries.¹⁰

The author has used ice therapy with especially good results on joints such as the ankle, knee, shoulder, and elbow. Having practiced all except one year in the field of athletic rehabilitation, it was imperative to obtain the maximum responses in a minimum time. Ice therapy has produced the desired effects through faster, longer, more efficient blood flow.

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A Novel Treatment for Knee Trauma

by Ernie Golin
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It is a well-established fact that the knee is one of the largest and weakest of the hinge joints in the skeletal system.

Due to the weakness characteristic, the knee is vulnerable to such commonplace injuries as tears of the well known main ligaments (medial and lateral collateral), the cruciates and the menisci.

In the primary stages of trauma to the knee, usually evident is effusion, pain, decrease in range of motion and other related symptoms. The main modality usually employed to minimize the aforementioned is Cryotherapy. This is administered in the form of ice packs, cold towels or ice splints.

For the past three years I have been using another form which I would like to add to the conglomeration of treatments.

The treatment encompasses using a twin valve inflatable full leg splint, a small water pump, and a tank of cold water (water should be kept between 35°F and 40°F). The treatment is administered in the following sequences:

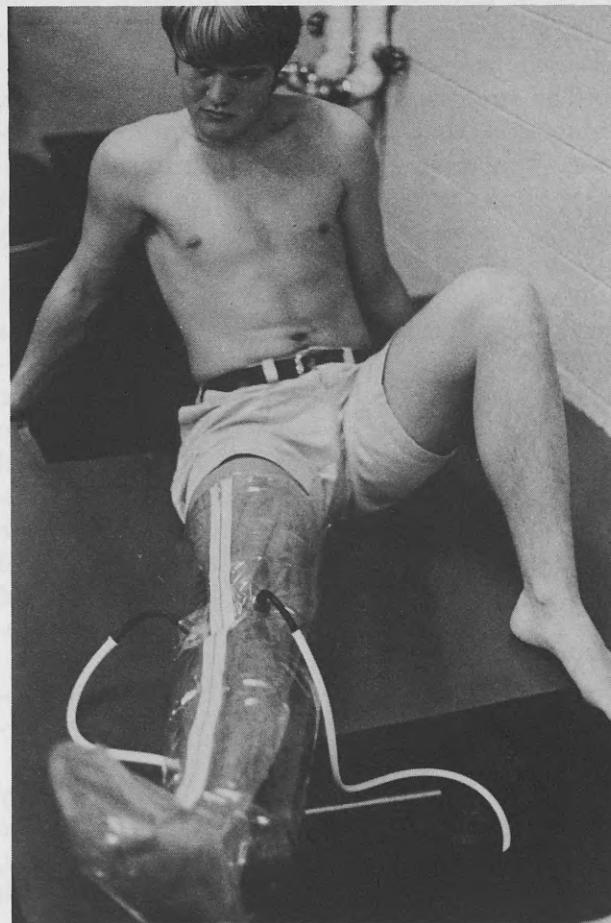
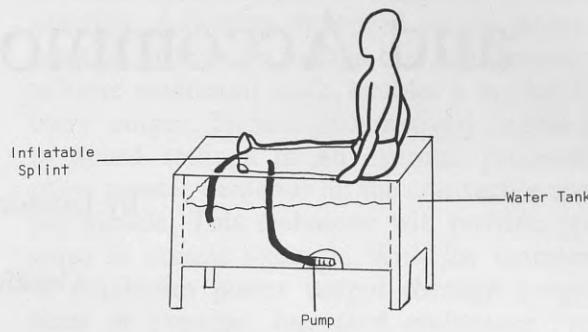
1. The knee is placed into a splint which is in a deflated state.
2. A water pump is attached by surgical tubing to one valve of the splint. This serves as the intake for cold water.
3. The other valve is extended by adding surgical tubing to allow for evacuation back to the tank to be recooled.

The two main advantages of employing Cryotherapy in this manner are:

1. A constant supply of cold water is maintained to the area. It does not have to be changed every fifteen or twenty minutes like other methods.
2. It applies a steady even pressure all over the area to control edema.

By using a full leg splint, this lends itself to contusion injuries of the quadriceps muscle group besides the knee.

The above method can be applied until a physician has had a chance to rule out possible surgical correction or immobilization for a prolonged period. After it has been decided that surgery and complete immobilization is not necessary, treatment may be continued in this manner.



Isokinetic Exercise: Controlled Speed and Accommodating Resistance

by Donald A. Chu, R.P.T.
and
Gerald Smith, B.S.

Physical fitness" may be achieved through involvement in various exercise programs, as the concept of physical fitness varies greatly today. Basically, however, all concepts of physical fitness refer to a specific efficiency of the body. Physical training attempts to improve this efficiency through the development of strength, endurance, and/or flexibility.

The **strength** of a muscle is the pulling force, or tension, that can be exerted during contraction. This pulling force at contraction is dependent upon the size and number of muscle fibers that are active at any one time, and the frequency of nerve impulses to these fibers.

Endurance may be recognized as twofold: muscular and circulo-respiratory. Both divisions depend upon oxygen and the circulation of oxygen to the muscles. Muscular endurance is the ability to lift a certain weight many times, or to hold the weight in a set position for a long period of time. Muscular endurance is sometimes referred to as a 'local' type of endurance. The effectiveness of the heart, blood vessels, and lungs in the transport of oxygen and release of carbon dioxide to and from the muscles is circulo-respiratory endurance.

Stamina is considered the combination of muscular endurance and circulo-respiratory endurance.

Flexibility is the range of motion permitted by the joints of the body. Joint motion is in some cases limited by the bony structure of the body, but range of motion is influenced by muscle girth

and ligament tension; therefore, flexibility may be improved by appropriate exercises.

Unfortunately, many exercise programs do not offer anything approaching development of total physical fitness. Most programs offer the development of only one, or possibly two, components of physical fitness and virtually ignore the others. Since physical fitness consists of many factors, the exercise program for athletics must focus on the specific factors that the coach or athlete is attempting to improve. From this standpoint physical fitness becomes more qualitative, as it may be recognized as the functional capacity of an individual to accomplish the tasks of a specific sport.

The demands of the activity may be prepared for by applying an unusual stress to a specific area and thereby strengthening the area enabling it to function more efficiently. In general, all training programs which involve the application of stress to a specific area involve the use of the overload principle. Overload depends upon the individual's current level of fitness. This level is often so low that initial minimal physical activity functions as an overload. Therefore, for improvements to continue, it is necessary that the overload be adjusted to keep pace with the adaptations of the body. Hence, training programs must incorporate individualized and progressive workouts to realize effective results.

The two traditional overload methods of strength training are called isometric and isotonic exercise, and now a third system "isokinetics" has

shown great potential. The two programs differ in the functioning of the muscle while performing each.

The word "isometric" means "same length", and is recognized as 'static' because the muscle remains at the same length throughout. Isometric muscular contractions are against a load which is immovable. The muscle may achieve near maximal contraction, but in one position with no physical work being accomplished; work being defined as force times distance. Hence, isometric exercise is muscular exertion without the qualities of work.

The word "isotonic" means "same force", and refers to the contraction of the muscle against a *constant force* throughout the range of motion. Isotonic exercise is referred to as 'dynamic'. In isotonic exercise while the load of the weights remains constant through the range of motion, the resistance to the muscle is not constant because of the varying strengths of the lever systems used in dynamic exertion. The load of the weights has its greatest effect on the muscles at the extremes of range and least effect at the mid-range. Therefore, the maximal demand on the muscle during isotonic exercise is required only through a small portion of any range of motion, resulting in the total work done being much less than the maximum capacity. Isotonic exercise limits maximal contraction of a muscle because the force used must not be too great for the weakest point in range if the complete motion is to be accomplished.

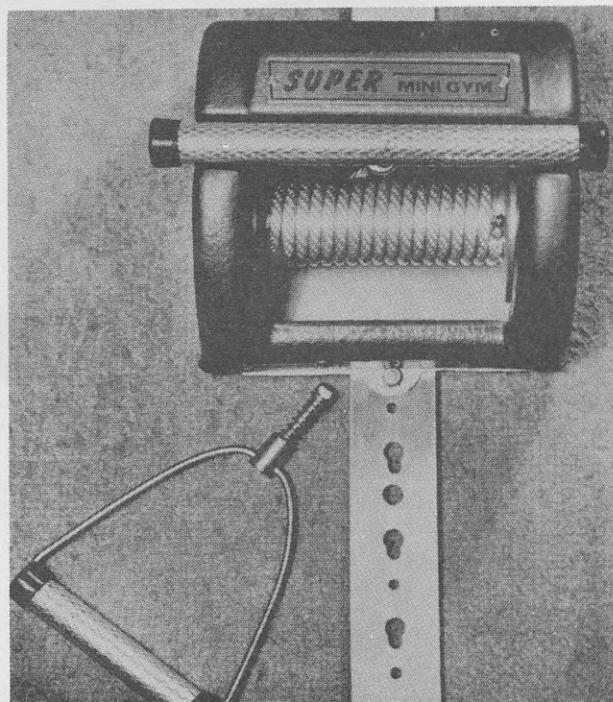
"Isokinetic" contractions involved the control of speed throughout the range of motion. In order to achieve this control, an external means of holding the speed of body movements must be provided. An isokinetic device inhibits acceleration while providing the mechanical means of receiving the maximal muscular force throughout a range of motion. The isokinetic concept of overload may therefore be recognized as a system of accommodating resistance.⁹

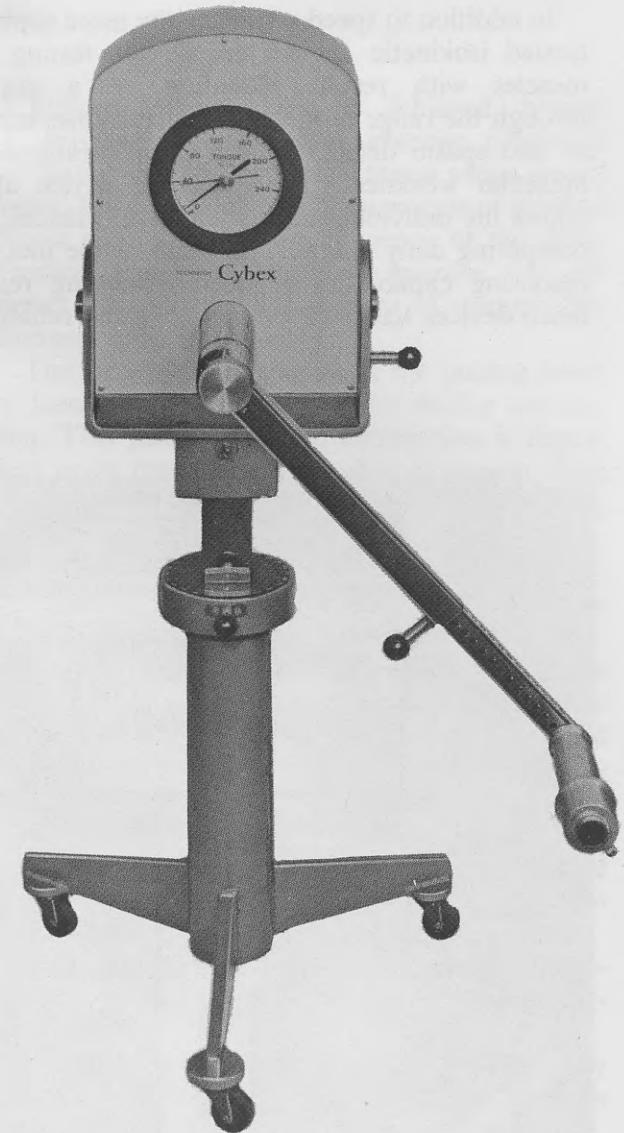
In isotonic exercise, because the load is constant, the speed of the body segment involved will vary with the force applied. In isometric exercise speed is obviously eliminated because of the prevention of motion entirely. In isotonic exercise some energy is utilized by the contraction and much is consumed in the various accelerations of the motion. In isokinetic exercise more energy may be absorbed by muscular exertion because acceleration is controlled mechanically by the device. Therefore, energy is not wasted in speed control and may be concentrated on developing force. With the use of the isokinetic device the

muscle is able to maintain a state of maximum contraction through its full range of motion and thereby a maximum demand is required on the work capacity of the muscle. It may be recognized that in this capacity isokinetic exercise offers the advantages outstanding in **both** isometrics and isotonics.

Progressive resistance effects may be reached in isokinetics by adjusting the rate of speed to establish specific exercise conditions of muscular exertion. Adjusting the speed on the device to a position at which a muscle can still contract, and achieve maximum work, enables a maximal muscular output. Hence, progressively higher paths of speed settings in an exercise program will place greater demands on the contractile speed of the muscle. This technique will provide optimal gains in muscle strength. With the maintenance of maximum power output through longer periods of exercise, increased endurance may be achieved.⁹

In addition to speed selection, the more sophisticated isokinetic devices enable the testing of muscles with results recording on a graph through the range of motion⁹. This enables tremor and spasm detections and specific ranges of muscular weakness. The recording device also allows the individual to analyze performances by comparing daily charts. The value of the unique recording capabilities of accommodating resistance devices has been evidenced in the rehabili-





tation of athletic muscle injuries. With the information provided by the isokinetic recorder the athletic therapist is able to concentrate treatment to the appropriate range of contraction.

The preceding illustrations emphasize the difference in the effect of resistance found between an isotonic and isokinetic dynamic contraction of the biceps. In the isotonic contraction at the 180° range and the 45° angle the greatest amount of resistance is being placed on the muscle. The non-extreme mid-ranges of the movement receive less than half the possible resistance offered by the constant load. The obvious advantage of the isokinetic contraction is represented on the lower graph. Individual differences in strength through the range-of-motion are accounted for by mechanical adjustments in the isokinetic device which create a situation of maximal loading through the entire range.

In order to fully understand the difference between the various physiological stresses and loads placed against the muscle, and the inherent individual differences, let us take a closer look at the muscle itself.

MUSCLE COMPOSITION

Muscles are grouped into three general classifications as follows: 1) striated, 2) smooth, 3) cross-striated. Striated muscles are so called because they contain alternating fibers of light and dark bands. Striated muscles have also been classified as 'skeletal muscles' because of their close association with the skeletal system. Striated muscles are characterized by voluntary contraction in fast periods of shortening and relaxing.¹⁰ These are the muscles which the overloads of the training program are focused upon.

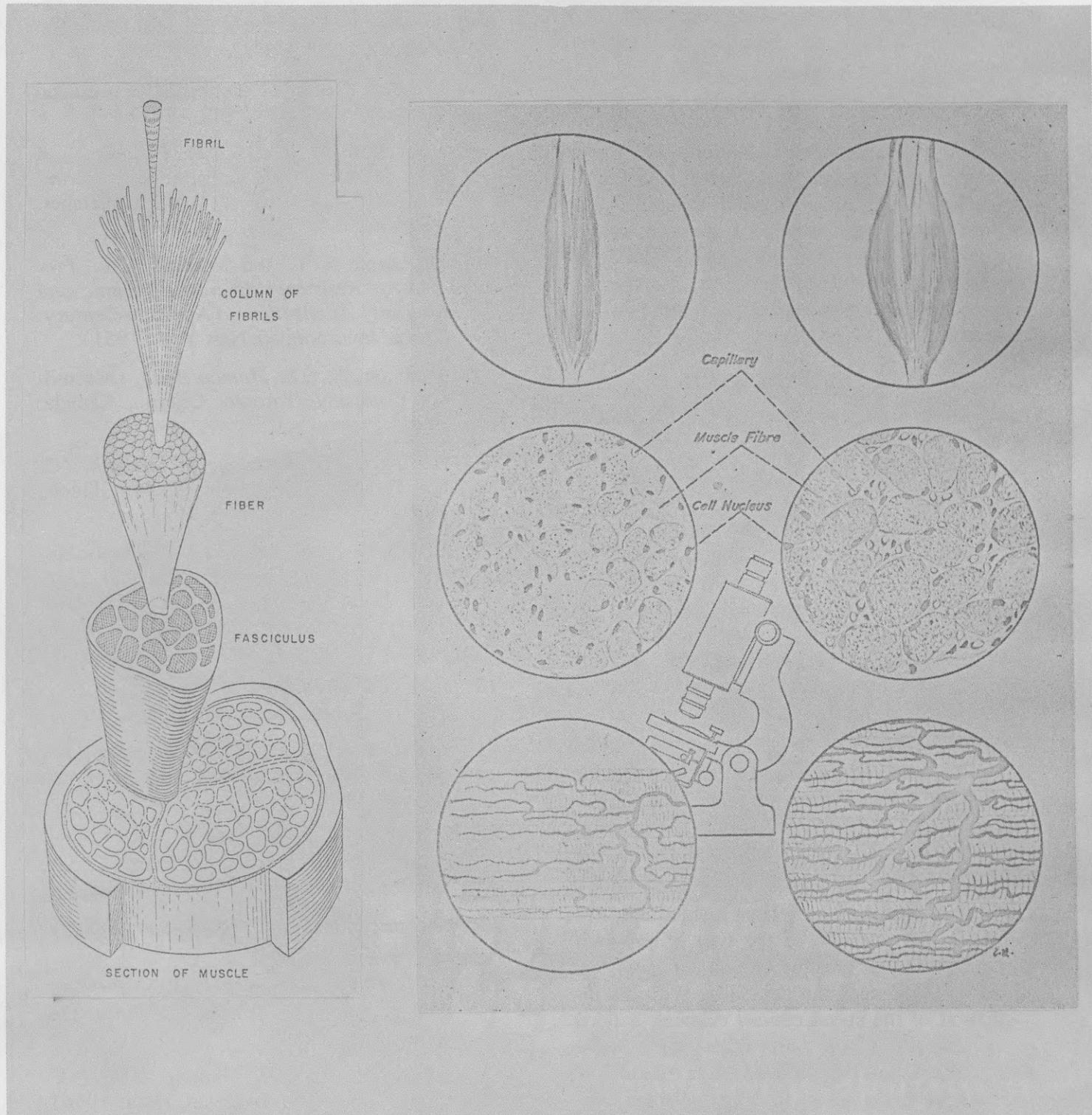
Each muscle is composed of muscle fibers which are elongated, multinucleated cylinders of varying length. The wall of an individual fiber is a transparent membrane called the sarcolemma. Within each fiber can be found fibrils of various diameters. The fibrils run the length of the fiber and are parallel to each other.

It is through the observation of these fibrils that much can be learned about the effect of overload principles on the muscle. Basic individual differences in number of muscle fibers are due to inheritance. New muscle fibers cannot be produced by the body; however, muscle fibers may be enlarged due to the stimulation of exercise.³ Natural muscle tonus of an individual before engaging in an overload program is due directly to inheritance and the number of muscle

fibers which are being daily utilized. Hence, the enlargement of a muscle, which results from growth by exercise, is due directly to an increase in the combined diameters of its fibers. The grouping of fibers within a section of muscle is called a fasciculus. Each muscle is composed of many of these fiber bundles, or fasciculi, as seen in the illustration below. Changes in the size of fibers are due to an increase in the makeup of protoplasm contained within muscle fiber, and

also an increase in the amount of myoglobin, the coloring substance of the muscle.¹ Also, capillary growth in size and number is such that, in spite of the increased size of muscle fiber, the oxygen and fuel supply is improved. The illustration on the right emphasizes the effect of training upon the muscles and capillaries.

It has been recognized that through isometric overload a limited number of muscle fibers are used because of the lack of movement in the



static exertion.¹⁴ It has also been established that isotonic exertion does not involve the same fibers throughout a given movement because the load is constant. The greatest exertion can be achieved through contractions exceeding 50% of the maximum number of fibers³. Therefore, the method which requires the nearest to a maximal contraction is desired.

The concept of isokinetic exercise requires more nearly a total involvement of muscle fibers because of the accommodating force applied to the muscle throughout a given range of motion.

With the development of new exercise devices the isokinetic concept has become practical for use by coaches, trainers, and researchers. Recoil handle devices provide portable units which may be purchased in quantity to allow for utilization in an isokinetic circuit training program. The devices offer a great variety of exercises and do not limit the program to movements specific to the device. Therefore, the isokinetic program accommodates all areas covered in traditional isotonic and isometric programs, with the advantage of specificity of exercise those movements particular to a certain sport may be taxed. Councilman⁵, at Indiana, has found isokinetic exercise to be of particular value in strength training of various swimming strokes.

The values of isokinetic concept may be summarized in that accommodating resistance is the best method of safely overloading a dynamically contracting muscle to its capacity. The psychological factor of confidence enables the exerciser to concentrate on the muscular movement without consideration for safety, fatigue, and/or pain. The adjustments for fatigue are automatic with the devices.

Again, it must be realized that isokinetics should be incorporated within a program of total physical fitness to be truly of value. Without the association of a circulo-respiratory fitness program, isometrics, isotonics, and isokinetics represent only a partial picture of physical fitness.

Physical educators have been divided into two camps on the question of the type of program that achieves the desired results in gains of strength, endurance, and flexibility. With the introduction of the speed control concept, a third group emerges on the basis of scientific study which establishes the uniqueness of isokinetics and its limitless values in therapy and research.

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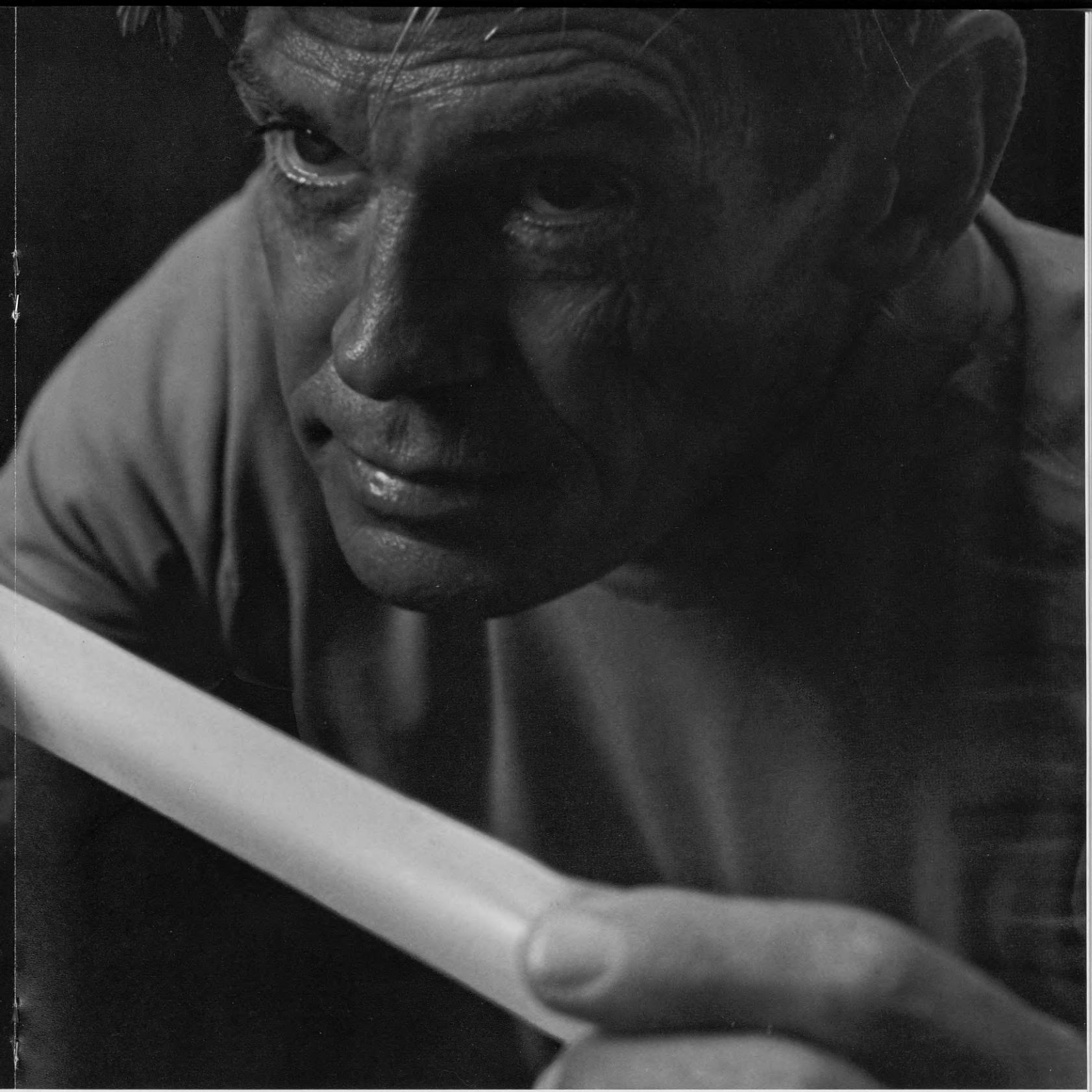
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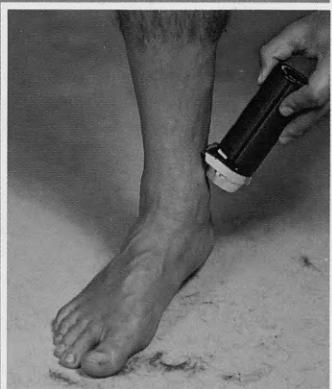
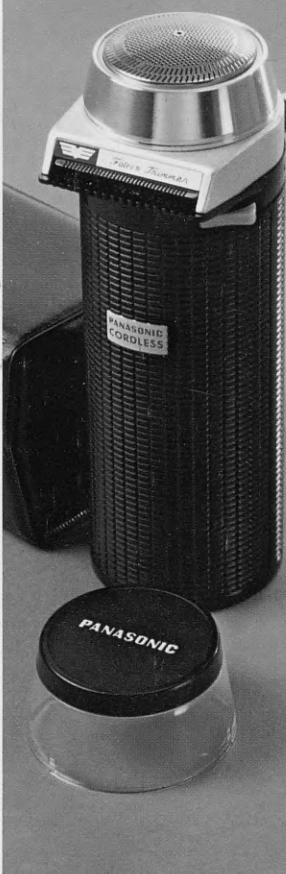
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A \$13.59 value — yours FREE with ten cases of SPEED PACK.

Athletic Training in the News

What were you doing New Year's . . ." to paraphrase an old and memorable song.

If you were Trainer Mike Bordner of Ohio State or Trainer Dave Blanchard of Stanford, you were at the Rose Bowl enjoying Pasadena hospitality. If you were Gene Paszkiet of Notre Dame or Frank Medina of Texas you spent the first day of 1971 in the Cotton Bowl. Miami's Orange Bowl hosted our fellow trainers George Sullivan of Nebraska, and Marty Broussard of the Tigers of LSU. New Orleans and the Sugar Bowl enjoyed the presence of Mickey O'Brien of Tennessee and Air Force's Jim Conboy. During the Christmas and New Year's holiday time a great many of our cohorts travelled far and wide. Monty Smith of Colorado and Earl Porche of Tulane were in Memphis for the Liberty Bowl, while Naseby Rhinehart of Montana and Dennis Isrow of North Dakota State watched their respective teams tangle in the Camelia Bowl at Sacramento.

Moving down to Arlington, Texas and the Pecan Bowl we found Ron VanDam of Central Missouri and Rich Johnson of Arkansas State. Sam Whitman of Tennessee State and Don Boyne of Southwestern Louisiana were with their football teams at the Grantland Rice Bowl, Baton Rouge. Miami hosted the Orange Blossom Bowl and Stan Anderson of Jacksonville, Alabama and George Thompson of Florida A & M were there enjoying the sun . . . and speaking of sun, Texas Tech's Bob Bissell, and Pat Dyer of Georgia Tech sat on opposite sides of the field in the Sun Bowl at El Paso. Tom Oxley of Long Beach State didn't have to travel far to get to the Pasadena Bowl but Jim Bible of Louisville did—some 2,000 miles. Toledo, with Jim Nice handling the training chores, travelled all the way to the Tangerine Bowl in Orlando to meet William and Mary and Mont Linkenauger. Troy Young kept the Sun Devils of Arizona State together at the Peach Bowl in Atlanta as did John Lacey of North Carolina's Tar Heels.

Those of us who watched TV saw Jim Goostree of the Crimson Tide of Alabama and Ken Rawlinson of Oklahoma in action in the Astrodome in Houston on December 31st. And, of course, we saw our friends and fellow trainers in

the pro ranks in action on Sundays all season long, from early September to the Super Bowl in January . . . and do we wish we, too, could get in on the Big Cut. But those of us who travelled far and wide during the Christmas season got our watches, rings, free trips to Disneyland, etc., and a wee bit of extra spending money—maybe. More important, we travelled with the finest athletes of them all, the American College Football Players. See y'all next New Year's.

• • •

Let's not forget the Basketball Trainers. Unfortunately space will not permit listing all the NATA brothers who travelled all over our country for holiday tournaments. The NCAA reports that over 100 major basketball teams were entered in tourneys during December. You have to envy fellows like Rod Kimball of Brigham Young, Bob Behnke of Illinois, Lindsay McLean of Michigan, Ed Farrell of New York U., our buddy Bob Bauman of St. Louis, and Jake Nevin of Villanova who spent almost a full week in Hawaii at the Rainbow Classic? How about Roger Marshall of the Hawaiian Armed Forces Team and Dean Adams of the University of Hawaii who were at home in Honolulu and didn't get to travel. Poor fellows, especially Dean whose team won the Classic.

At the big one in New York, the Holiday Festival at the Garden, were Jim Price of South Carolina, Russ Miller of Western Kentucky, John Gimmier of St. John's, Jack Scott of Holy Cross, John Johnson of Manhattan, Tom McGory of Cornell and Bill Battershall of St. Peters.

Jim Marshall of Minnesota spent Christmas in the Bavarian Alps with the Gopher Hockey Team. There's mileage for you, and that was only December!

• • •

Speaking of hockey, the one person who has probably done more to get the pro hockey trainers, NHL and minor leagues, interested and involved with the NATA is Tommy Woodcock of the St. Louis Blues. A fine article on the important part Tommy plays in the success of the Blues is spelled out in the December '70 issue of "St. Louis Fan" a general sports information maga-

zine distributed in the St. Looey area each month. Tommy is a campaigner for a compulsory ruling "Helmets to be worn by all Hockey Players".

• • •

"Good Trainer Held Invaluable to Team Physician and Player." This headline tells the story. Dr. Phil McFarlane, a Fullerton, California orthopedic surgeon explains why a good trainer in high school is "worth his weight in gold, figuratively and literally". Dr. McFarlane said the trainer can save a tremendous amount of disability, time and money. "In our particular situation we have statements from our insurance carriers that our rates have materially been reduced because of the presence of an adequately-trained trainer and our resulting decrease in claims." The full article, worthy of your attention, appeared in the November 16, 1970 issue of the Hospital Tribune.

• • •

Hermin L. Masin, Editor of the *Scholastic Coach* has a most informative article in the January 1971 issue of the *Scholastic Coach*. The title is "So You Want to Write For Publication?" and it contains good information on how to go about preparing an article for publication. Good straightforward advice from an expert. Trainers, get into print! There are people who need your advice and information. In the same issue is James Littlejohn's article "In The Bag". Jim, formerly at St. Lawrence (N.Y.), tells what he puts into his field bag. Grab a look and compare.

• • •

The November 15th issue of the Norman (Oklahoma) *Transcript* tells of Dr. D. H. O'Donoghue, Team Physician at Oklahoma, being inducted into the State of Oklahoma Hall of Fame. He shared the honor with five other men and one woman. Dr. O'Donoghue is the guy who wrote "the book" that most of us turn to daily for help and information. He was born in Iowa and received his M.D. from the University of Iowa, organized the first national postgraduate course in sports medicine. He is presently chairman of the Athletic Trauma Committee of the American College of Surgeons, and chairman of the Committee on High School Injuries for the Oklahoma State Medical Society's Council on Public Health. Born and raised a Hawkeye, he is now a full-fledged sooner.

• • •

Jack Rockwell reports that the Travelling NATA Exhibit that you fellows saw at last June's convention has been making the rounds. It's been at medical conventions and sports medicine clin-

ics, and following are the future sites and dates of the exhibition:

Jan. 11-14 American Football Coaches Assoc. and NCAA Convention at Houston, Texas

March 6-11 American Academy of Orthopedic Surgeons at San Francisco, California

March 1971 American Academy of Pediatrics, St. Louis, Missouri

May 1971 American Assoc. of Health, Physical Education and Recreation

We will probably see it again at the National Convention this June, a little battle-scarred but highly honored.

• • •

SPECIAL

Mr. George D. Smith, Director of Athletics at the University of Cincinnati, reports that a JAMES SCHROER MEMORIAL FUND has been established at Cincinnati in memory of Marshall University's Trainer, Jim Schroer, who perished with his team in that terrible plane crash last fall. Anyone wishing to make a contribution in memory of this fine young man and fellow trainer should make the check payable to: James Schroer Memorial Fund, and mail it to the Department of Athletics, University of Cincinnati, Cincinnati, Ohio 45221. Jim was an Alumnus of the University of Cincinnati.

• • •

STILL GOING LIKE SIXTY AT SEVENTY!

Do you know a trainer who is 70 and still





Summer Camp for High School Trainers

going strong? If so, add the name of Tom Fraser of Episcopal Academy in Philadelphia to that honored list. A native of Scotland, Tom was an American professional soccer player with the Bethlehem, Pennsylvania team in the late 20's. His training career covers a span of some 40 years, the last 22 being spent at the Academy as a Coach, a teacher and the trainer. Hope to see him at Baltimore in June.

• • •

How about a summer camp for high school trainers? Duke LaRue of Western Illinois tried it last summer and found it such a success he's going full-steam ahead in '71. Was—and will be—held on the campus at Western Illinois, Macomb, Illinois.

• • •

CALENDAR

March 26-27 Sixth postgraduate teaching days in Sports Medicine. University of Wisconsin Medical Center, Madison, Wisc.

April 5-6 Second Annual Sports Medicine Symposium, Cleveland Clinic. Cleveland, Ohio.

April 22 Sixth Annual Conference on Medical

Aspects of Michigan High School Sports. Michigan State University, East Lansing, Michigan.

April 27-30 American College Health Assoc. Annual Meeting, Hilton Hotel, San Francisco.

May 6-8 American Academy of Orthopaedic Surgeons, "Injuries to Upper Extremities", New Orleans, Louisiana.

May 10-12 Joint Meeting, American College of Sports Medicine and Canadian Assoc. of Sports Sciences, Toronto, Ontario.

July 26-28 AAOS, Committee on Sports Medicine, "Shoulder in Sports", San Francisco.

Sept. 13-15 AAOS, Committee on Sports Medicine, "Knee in Sports", New York City.

ATTENTION TRAINERS: If you are holding athletic injury clinics of your own, or are speaking or teaching at a clinic, please let us know now so we can have it in the next issue of the *Journal*. Send date, organization, topic and place to:

Lenwood Paddock
1489 Marian Avenue
Ann Arbor, Mi 48103



If I hadn't been nagged into getting a checkup, I'd be kicking up daisies.

The toughest fight I ever had didn't happen on any big, wide screen. It happened in real life.

I was just finishing my 99th picture. My 99th ridin', jumpin', fightin' picture. Never felt better in my life.

I told the family when I'm through here, I'm going out on my boat. Sure, they said, just as soon as you've had your medical checkup. I said nonsense, I had one eight months ago. They said it was more like eighteen.

So I said okay, okay, and then the X-rays showed a spot on my lungs. It was cancer. If I'd waited a few more weeks, I'd be dead.

The first couple of months after surgery, it hurt like hell to get on my horse. Since then I've been good as

new. If you caught "True Grit" or "Chisum" you've seen for yourself.

So, friend, I know what I'm talking about when I tell you, get a checkup. Talk someone you like into getting a checkup. Nag someone you love into getting a checkup.

And when the lady from the American Cancer Society rings your doorbell, dig deep in your pocket. They're working to rid this world of cancer once and for all.

American Cancer Society
We want to wipe out cancer in your lifetime.®

Athletic Training in the Literature

ONE WRONG STEP

On Wachusett (Mass.) I sprained my foot. It was slow to heal, and I went to the doctors. Dr. Henry Bigelow said, "Splint and absolute rest." Dr. Russell said, "Rest, yes; but a splint, no." Dr. Bartlett said, "Neither splint nor rest, but go and walk." Dr. Russell said, "Pour water on the foot, but it must be warm." Dr. Jackson said "Stand in a trout brook all day."

Ralph Waldo Emerson (1859)

RECOMMENDED READING!

"The Doctor's Trauma Lab—Pro Football" Medical World News, September 18, 1970, pp 24-30.

CANDID CAMERA

TV camera close-ups of the Ohio State bench at the Rose Bowl showed clearly that most of the Buckeyes were wearing their plastic toothguards. Ohio has been a leader in having all players wear their guards. They've saved a lot of money thereby, and more important, a lot of good teeth also.

With the abundance of literature available today dealing with the many facets of sports medicine, it is sometimes difficult to determine which subjects should be reported. The scope of knowledge that the Athletic Trainer is being called upon to be familiar with requires that the trainer be a combination of a coach, a physical educator, an exercise physiologist, a physical therapist, a psychologist, a pharmacologist, not to mention the many aspects of the medical profession that are contacted.

This is not to say that proficiency in each of those areas is necessary, only that the trainer is called upon to deal with some, or all of these areas daily. Each discipline has an abundance of research and literature periodically appearing to update, or inform, each profession, hopefully providing new and better ideas with which to serve in the professional capacity.

With this in mind the reader will find, in future issues, reviews of texts and articles that will try to cover the multiplicity of disciplines utilized daily by the Athletic Trainer. These future issues will bring on such texts as, *Training and Conditioning of Athletes* by Novich and Taylor; *Contemporary Reading in Sport Psychology*, edited by Morgan; *Textbook of Work Physiology*, by Astrand; *Applied Kinesiology* by Jensen and Schultz and *Endurance Fitness*, by Shephard. All are new publications that may enlighten our profession and make better trainers of us all.

THE JOURNAL TEN YEARS AGO WINTER, 1960

"A series of Case Study Reviews of the Non-Effectiveness of Progressive Resistive Exercise for Re-Establishment of Ligament Stability" by Karl Klein, Assistant Professor of Physical Education, University of Texas. In an attempt to discern whether or not progressive resistance exercise to the anterior and posterior thigh muscles has a stabilizing effect on the ligaments of the knee, 20 post-injury and 20 post-operative knees were tested for ligament stability before and after the undertaking of a progressive resistance exercise program for the anterior and posterior thigh.

The exercises were continued until bilateral strength balance was gained and strength level of both legs was higher than the pre-test level. Mr. Klein states, "It is concluded that the utilization of progressive resistance exercise has no known effect for the reestablishment of medial or lateral or anterior cruciate ligament strength as well as no influence on the shortening effect of these ligaments that would be necessary for adding stability to the knee joint.

Mr. Klein notes that the hamstring muscles have about 60% of the strength level of the quadriceps. He makes the point that 'strong' thigh muscles controlling the knee of an athlete with known weak ligaments is a must to compensate for the lack of stability provided by the weak ligaments in retaining a 'normal' continuity be-

tween the tibia and femur during the weight bearing phase of activity.

He also notes that using a brace on an unstable knee is indicated only in the case where surgery and maximum muscular redevelopment has failed to yield a serviceable knee, contraindicating, of course, excessive activity, expecting only ordinary ambulation as a function. Approaching it from a psychological viewpoint. Mr. Klein admits that "the presence of an elastic-type brace on the joint, causing some proprioceptive stimulations to create more muscular tensions in the thigh, can be used as a crutch that permits more active function and simulated protection even though the recognized supportive capacity is minimal".

KNEE INJURIES

It is of interest that investigations, such as C. M. Tiptons' "Physical Activity Levels and Ligamentous Strength", presented to the 1967 AAHPER Convention, have indicated actual strengthening and/or thickening processes occurring in the knee ligaments of animals whose ligaments were subjected to stress over a period of time. Discussion arose at the August, 1970 American Academy of Orthopedic Surgeons Symposium, *The Knee in Sports*, of possible adaptation to stress to ligaments coming through the proprioceptive apparatus of the ligament. Daily agility exercises that stress the ligaments of the knee may be called for in the armamentarium of knee injury prevention. No doubt certain stresses are revived during practices and competition but as in the case of strength training, a periodic, guaranteed overload may be necessary to maintain a satisfactory level of desired ligament size or strength for each individual.

Also appearing in the *Journal* was "Ligamentous Peroneal Nerve Syndrome" by Max M. Novich, M.D. Dr. Novich describes a case study of a 16-year-old football player whose knee was injured as a result of a cross body block causing the knee to twist outward. The initial diagnosis was severe contusion of the leg and thigh with possible tear of the lateral cartilage and knee sprain. X-rays showed no fracture. The following day the dorsum of the foot was numb and there was an inability to dorsiflex the foot. On the third day there was severe ecchymosis on the lateral aspect of the knee, leg and lower thigh. Examination by a neurological consultant left a clinical impression of a contusion of the common peroneal nerve. Surgery was recommended on the fourth day due to marked adduction of the leg at the

knee, an indication of a torn lateral collateral ligament.

Surgery found that the lateral articular capsule was torn from the tibial attachment, the biceps tendon was avulsed from the fibular insertion, the lateral meniscus was intact and the peroneal nerve completely avulsed with its proximal end retracted into the posterior thigh. Repairs were made and a cast was applied with a neuroplasty to be performed at a later date.

Subsequent surgery, 34 days post injury, revealed good healing in the repaired structures and a neurosurgeon approximated the proximal and distal nerve endings, after resecting neurofibromas and areas of intraneuronal fibrosis, with the knee at 90° and the hip at 180°.

Approximately five months post operative, the patient had full strength in the hip and knee with full range of motion but had no motion in the dorsiflexors and everters and sensory numbness was present in the lower left lateral leg and over the dorsum of the foot. Sensory perception was present along the inner and outer aspect of the left foot and through the proximal and medial aspects of the leg. The prognosis for full recovery was guarded.

LIABILITY

Howard C. Liebee of the University of Michigan presented an article on "Legal Bases of Liability for Athletic Trainers". He briefly reviews some of the legal aspects regarding our duties and responsibilities as Athletic Trainers. His discussion quickly narrows down to the definition of negligence, its applications and ramifications in our profession as well as its common application to the general public. Listed are those items necessary to the successful maintenance of a suit based on negligence:

- 1) duty to conform to a standard of behavior which will not subject others to an unreasonable risk of injury
- 2) breach of that duty
- 3) a sufficiently close causal connection between the conduct or behavior and the resulting injury
- 4) damage or injury resulting to the rights or interests of another

The constant comparison of the actions of an athletic trainer with the actions of the hypothetical reasonably prudent athletic trainer—as visualized by the courts—is the key in most all cases. As Mr. Liebee states "negligence may be found where the person acting, (the athletic trainer), has taken careful consideration of the consequences of his intended act and has acted in

conformity with his best judgement, if that judgement is not in accord with the judgement a reasonably prudent person (athletic trainer) in his position would have exercised".

Mr. Liebee concludes by saying that a reasonably prudent and careful athletic trainer:

- 1) performs service only in those areas in which he is fully qualified and directed by medical personnel
- 2) assigns only qualified personnel to perform any service under his supervision
- 3) performs proper act in case of injury
- 4) secures medical approval for any treatment described
- 5) keeps an accurate record of injuries, services rendered, and authorizations by medical personnel
- 6) permits athletes to return to sports activity following illness or serious injury only after securing medical approval
- 7) has medical personnel available at all contests and readily available during practice sessions
- 8) knows the health status of athletes under supervision
- 9) is concerned in the protective quality and proper fitting of sports equipment worn by athletes
- 10) in all his actions or inaction he asks himself, "What would the reasonably prudent and careful athletic trainer do under these circumstances?".

BASEBALL AND STRETCHING

Don Fauls, Trainer, Florida State University, presented an article on baseball, "The Arm Stretch". Before describing the manual stretching procedure of a pitchers arm, Don suggests that the stretching procedure "can save as many as 20 pitches from the pitcher's pre-game warmup . . . giving the pitcher that little extra he might need late in the game".

Accompanying Don's eight part method are nine photographs clearly illustrating the procedure he describes. His method includes the stretching of the shoulder, the elbow, the wrist and the fingers of the pitching arm.

Dr. James H. McCreary, consultant Dermatologist, Ohio State University, presented "Recognition of Common Skin Disorders", listing and briefly describing the etiology and treatment of the following skin disorders common to athletics and the training room:

Blisters, Sunburn, Allergic Reactions (hives, tape rash, poison ivy), Boils, Impetigo, Athletes foot, Ringworm, Jock rash, Warts, Herpes simplex, Acne, Moles, and Psoriasis.

"Medical Terminology" by Eddie Wojecki, Athletic Trainer, The Rice Institute, provides a list of definitions including 40 general medical terms, 18 medical adjectives or affixes, 14 medical prefixes and 11 medical suffixes.

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A look at some present literature finds some interesting reading in sports medicine appearing in *Newsweek* magazine, 76:78, September 7, 1970. Reporting on a paper by the National Research Council the *Time* article stated that according to the NRC the football player least prone to knee injuries is apt to be "thin, has a low level of urea nitrogen in his blood, has a small wrist, a long electrocardiogram interval and a low vital capacity".

Coming from a National Football League sponsored symposium in St. Louis, the NRC, through researchers at the University of Florida, fed player characteristics into a computer and derived a profile of the individual least likely to suffer a knee injury. *Newsweek* states, "Wrist circumference, for example, is an indication of bone structure, and statistics indicate that thinner boned players are less liable to all forms of injury. High amounts of urea nitrogen in the blood are often a sign of poor acclimatization to heat, a condition which can also be a factor in injuries, and a long interval in the heart rate is normally an indication of all-around good health".

Also discussed in the article were the results of an Ohio State research group that indicated no difference in treadmill performance between volunteers who had been put into a sweat box, reducing their body weight, through dehydration, by 3% and then rehydrating with either Gatorade, water or soft drinks. Blood analysis and urine analysis of the subjects indicated no significant difference in rate of absorption of the Gatorade, water or soft drinks.

• • •

An article called "Change of Form of the Foot and The Foot Skeleton Upon momentary Weight Bearing", appearing in *ACTA ORTHOPAE-DICA SCANDINAVICA*, 39:413, 1968 drew my attention while I was doing some research for my column. The athletic trainer is dealing constantly with the problems of the foot in almost all sports. Aside from blisters, plantar warts, calluses and other such topical foot maladies, many problems arise from suspected structural changes and the resulting effects in the foot and lower leg.

Perhaps all trainers apply strapping procedures to the feet to alleviate some of the hurts that are thought to be caused by changes in the

structure of the transverse arch, longitudinal arches, weak intrinsic muscles and stretched muscles tensions that insert into bones of the foot.

One of the most commonly used strappings is one which approximates the plantar ligament of the foot, presumably to support the longitudinal arch of the foot, consequently relieving lower leg maladies of the peroneals and posterior tibialis—commonly referred to as a form of shin splints. Empirically, the strapping does, in many cases, provide relief, physically and/or psychologically, but in the article by Carlsoo and Wetzenstein, foot measurements, taken with x-rays, showed no changes in the form of the foot skeleton on 19 'normal' subjects as the left foot went from a non-weight bearing to a full weight bearing status. Only in one case did foot skeletal length increase with weight bearing and that was an increase of 3mm. Foot skeletal height decreased with a mean of 0.15 mm as the weight bearing position was assumed. With such an insignificant structural change upon weight bearing, how can applied strappings enhance the structural stability of the foot skeleton enough to provide relief to the problems that arise in athletics?

One answer might be that the lower leg that is experiencing the shin splint symptoms does not have a foot with a 'normal skeletal structure', predisposing pain in the lower leg that can be relieved by supportive strapping procedures. Another is that, rarely is a foot strapped in the normal weight bearing position with the plantar surface facing down, but is usually strapped with the toes pointing up, (a sitting, straight legged position), or with the plantar surface facing up. In these positions, with the foot relaxed, gravity could bring bones into such a position that when tape is applied a structural position is assumed and retained by the strapping, that is different from the skeletal structure of that individual's foot in the unstrapped, weight bearing position. Of course, too much of an alteration of these structures with tape could likely produce a painful foot upon weight bearing over a long period of time. An interesting investigation might be that of following the same procedure of Carlsoo and Wetzenstein and strapping the foot in the 'toes up' or 'plantar surface up' position and compare weight bearing x-rays with non-strapped, weight bearing x-rays.

• • •

A welcomed addition of the athletic trainers library would be the *Bibliography of Sports Medi-*

cine produced by the American Academy of Orthopedic Surgeons. Although many sources are available for the trainer seeking citations and references dealing with aspects of sports medicine, most of the more complete sources (i.e. *Index Medicus*) index many other facets of the medical literature and prove too expensive to be possessed by the average athletic trainer for handy, every day referral. The *Bibliography of Sports Medicine*, a 1314 citation, interdisciplinary, bibliography gives the athletic trainer, for \$2.00, the availability of the literature of sports medicine from 1964 into 1970. Some pre-1964 papers, that have been judged valuable to the field, are included in this volume.

At first glance, one might be somewhat disappointed in the number of citations presented but as Dr. Jack Hughston, Chairman of the Committee on Sports Medicine for the Academy, states in the preface, "with the vast number of articles that could be considered relevant to the project, any attempt at meticulous screening of each proposed entry would have made the project impractical". As it was, years were spent in the compiling and selecting of those articles, from the various disciplines, that were finally decided upon. Jack Rockwell, NATA Executive Secretary, was one of the non-orthopedic consultants serving as reviewer of the original draft of the volume.

• • •

It is interesting to note that the *Journal of the Nata* is not now indexed in any large library reference sources. To be included in a volume of reference such as the *Bibliography of Sports Medicine* is a boon to our profession and perhaps can be a stepping stone for further recognition of our organization and profession.

Perhaps the secret of further success with this publication is the frequency with which it is revised and published. An annual revision and publishing, as is done by the *Aahper's Complete Research In Health, Physical Education and Recreation*, might be preferred, with new citations becoming available monthly in the world of sports medicine literature. It is the Committee on Sports Medicine's intent to issue such a supplement of the *Bibliography* on a periodic basis to keep its users abreast of the available literature.

The *Bibliography of Sports Medicine* may be obtained through the American Academy of Orthopedic Surgeons, 430 North Michigan Avenue, Chicago, Illinois, 60611, for \$2.00.

C.B.T.

Minutes—Executive Council Meeting-NATA

The Executive Council Meeting was opened by Bobby Gunn, NATA President at 9:00 a.m. on Saturday, January 9, 1971 in the Marriott Hotel, Houston, Texas.

The first order of business was the report by each Division Director of their respective Division's Committees.

I. Professional Services Division—Gary Delforge, Division Director.

Following a complete report of the present status and ongoing work of the Placement Committee and the Research and Injury Committee the following recommendations were made by the Division Director.

A. It is recommended that the

Board of Directors request the Executive Director or other designated person to develop a financial budget which will include the allotment of an appropriate sum of money to be used by the Professional Services Division and its Committees for all ongoing operational activities.

B. It is recommended that the Board of Directors approve a plan for the Director of Professional Services Division to appoint a special Ad Hoc Committee to survey the wishes and desires of the NATA membership with regard to improved, expanded, or additional professional services which might be provided by the Association.

It was agreed after discussion to present proposal A to the Board. It was also agreed that proposal B would, for the present, best be handled by the Director of the Division with the cooperation of the Board of Directors and the NATA membership by letters, personal contacts, and perhaps a survey.

II. Professional Advancement Committee.

Reports for the following committees were presented by Mr. William Newell, Division Director: Recruitment Committee, Grants and Scholarship Committee, Professional Education Committee, and the Certification Committee and Certification Board. After discussion of each Committee report it was agreed to present the proposals as stated below for each of the committees to the Board.

A. Professional Education Committee

1. Change of present approval classification of full approval or rejection to a three-category classification (full approval, three year provisional approval for those curriculums weak

members of the ACTA notify by mail:

Professor Karl K. Klein
Liaison ACTA with NATA
Department of Physical Instruction
Rehabilitation Laboratory
University of Texas
Austin, Texas 78712

4. Although many NATA members have arranged to have their library subscribe to *The Journal of the National Athletic Trainers Association*, the majority have not. A telephone request to the library should be an adequate stimulus to place the Journal in the library.

5. For Summer, 1971: An Athletic Trainers Camp for High School Boys, Directed by Gordon Stoddard, Fee: \$80.00 for one week session, June 20-26, 1971. For information, contact: Baiers Birch Knoll, Inc., P.O. Box 206, Beaver Dam, Wisconsin 53916.

Submission of announcements for consideration should be complete within four weeks of the receipt of the current issue. Direct all announcements to: Clyde Stretch, Journal of the National Athletic Trainers Association, 666 Harley Drive, Columbus, Ohio 43202.

Dick Hoover, Chairman
Audio-Visual Aids Committee
Athletic Department
Northwestern University
Evanston, Illinois 60201

2. The Placement Committee is now functioning in full gear, awaiting to serve the membership of the NATA. All trainers looking for positions, and all organizations looking for trainers should contact:

Alan Hart, Chairman
NATA Placement Committee
Department of Athletics
Ohio University
Athens, Ohio 45701

3. The American Corrective Therapy Association, Inc., is in the process of establishing a liaison relationship with the NATA. A request has been made by the ACTA that all NATA members who are also

- in one or two requirements, and rejection).
2. To be added to the present procedure of approval—a one year probationary period in which the university submitting its athletic training curriculum for approval will make arrangements for the visitation of the nearest member of the Professional Education Committee. The travel costs and expenses of this visitation will be a part of the responsibility of the university submitting their athletic training curriculum for NATA approval. At the present time the Committee is working on establishing criteria for evaluating the curriculum while on visitation.
 3. To be added to the present procedure approval—each curriculum approval will be good only for a five-year period. At the end of this five year period the curriculum must be re-examined for approval for another five years.
 4. To be added to the present procedure of approval—a written statement stating that each university with an approved curriculum must notify the NATA of any change in the supervisor of the practical experience including the name of the newly appointed supervisor and a background resume.
 5. The Committee requests a specific amount of time be set aside at each annual meeting of the NATA for a professional education presentation during the program. Subjects that would be covered are teaching techniques, new curriculum developments, etc.
- B. Grants and Scholarships Committee No proposals
- C. Recruitment Committee No proposals
- D. Certification Committee
- It was requested that the following change be made in the NATA Procedures for Certification as

adopted in June 1970, by the Board of Directors in Denver, Colorado. Delete the word "active" (should be Active) from part 4, sections II and III, and part 6, section IV. The revision would then read "Proof of two (2) years continuous membership in NATA immediately prior to application for certification." Under Section I the wording would remain unchanged.

Following the reading and discussion of this proposal it was agreed to present the proposal to the Board, but to also present a substitute proposal which would read in its revised state as follows: "Proof of two (2) years Student or Active continuous membership in NATA immediately prior to application for certification". This would alleviate the improbable but possible application of a member from the Advisory, Allied, or Associate classifications.

III. Division of Information Services

Reports for the following committees were presented by Clyde Stretch, Division Director: Audio-Visual Aids Committee, Journal Committee, and Public Relations Committee. The following are committee proposals.

A. Audio-Visual Aids Committee

1. The Audio-Visual Aid Committee would like to attempt to function for the time being (1971) without a budget, with the exception of \$100.00 operating expenses.
2. It is the feeling of the Committee that all commercial and allied organization avenues of sponsorship should be exhausted before the NATA financially develops such a program.

B. Public Relations Committee

No proposals

C. Journal Committee

1. A proposal was made to change the name of the Journal. This is proposed in the hope that the Journal would appeal to a wider non-membership readership.

2. It was proposed that the appointment of an Advertising Manager and Business Manager for the Journal be accomplished at the earliest possible time.

3. It was proposed that the Board consider a change in the Journal cover format.

D. The Audio-Visual Aids Committee offered for consideration by the Board a request for NATA endorsement of a commercial cassette tape and booklet dealing with athletic taping and bandaging techniques.

IV. National Program and Business Affairs Division

Reports for the following Committees were presented by Mr. Tom Healion, Division Director: National Program Committee, Membership Committee, Honor and Awards Committee. The following are Committee proposals.

A. National Program Committee

No proposals

B. Membership Committee

No proposals

C. Honor and Awards Committee

No proposals

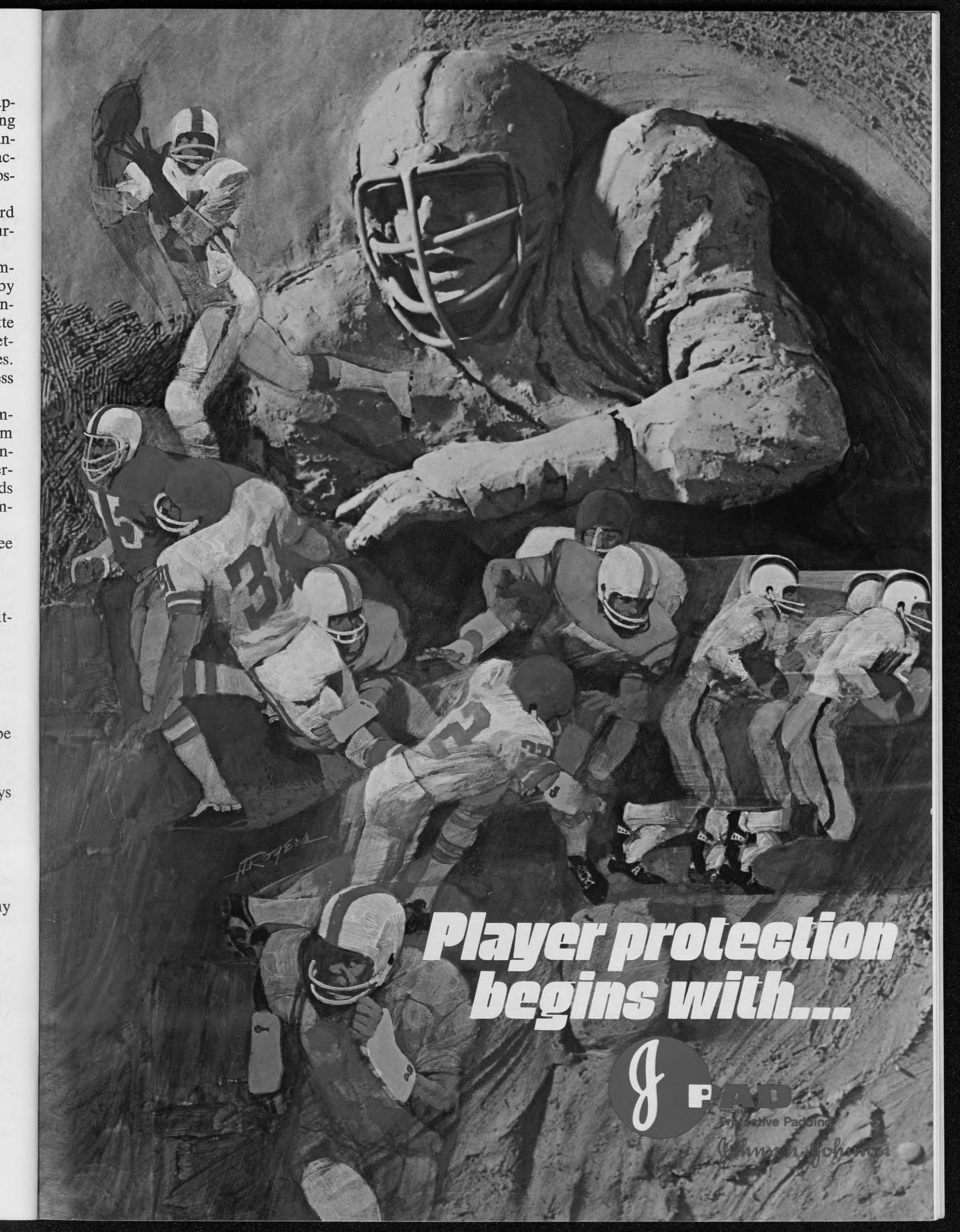
First Game

The lull before the storm
the staring, shooting eyes.
Nods and shrugs that must be sought
Conceal a secret, private state.
Each game is played in many ways
before you see a ball.
Uniformed in doubts and fears,
the sneak attack is on.
A must to take defense and stall
wait out their first assault
Opponents, disguised in many thoughts,
we cannot afford to feel.

Never sing before the music,
Nor smile before the laugh.
For, conditioning the listener
will weaken the response.

Many types of strategy,
to defend this private state
but, to play before the whistle,
has yet to win a game.

*J. W. Rogers, Athletic Trainer
Temple University*



H. Rogers

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Contoured—

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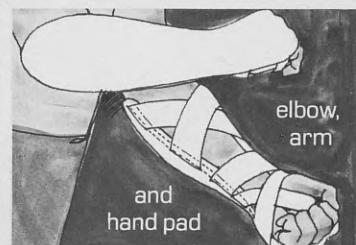
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hand knuckle pad



hand wrist pad



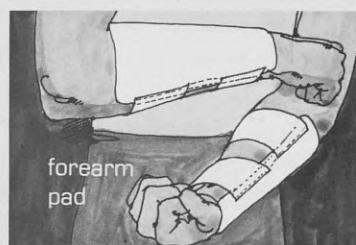
elbow, arm
and hand pad



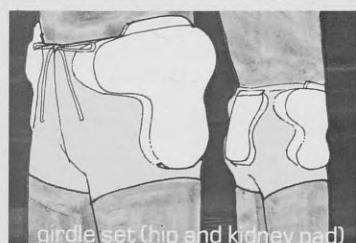
elbow forearm pad



elbow pad



forearm pad



girdle set (hip and kidney pad)



knee pad pants

Winter Board of Directors Meeting Minutes

The first Winter Meeting of the Board of Directors of the NATA was called to order by President Bobby Gunn, at 9:00 a.m., on Monday, January 11, 1971, at the Marriott Hotel in Houston, Texas.

The first order of business was the reading of the Division reports and the proposals that were to be discussed and voted upon.

The proposals were approved, disapproved, or no action was taken as follows:

I. Professional Services Division:

Proposal A*-Approved
Proposal B-No action taken

*For proposals see Minutes of Executive Council Meeting

II. Professional Advancement Committee

Professional Education Committee

Proposal 1-Approved

Proposal 2-Approved

Proposal 3-Approved

Proposal 4-No action taken, referred to Committee Chairman

Proposal 5-Approved

Certification Committee

Proposal I-Rejected (Wording to remain as is for present)

III. Division of Information Services

Audio-Visual Aids Committee

Proposal 1-Approved

Proposal 2-Approved

Journal Committee

Proposal 1-No action taken

Proposal 2-Approved

Proposal 3-No action taken

Audio-Visual Aids Committee recommendation on commercial cassettes tape endorsement by the

NATA was rejected.

The second order of business was a reading and discussion of the realignment Constitution and By-Laws by Mr. Billy Pickard. After thorough discussion the Board expressed a desire to have Mr. Pickard and his Committee, with the help and cooperation of Mr. Bruce Melin, Parliamentarian, further realign and work out certain areas of the Constitution and By-Laws. Mr. Pickard will present finalized copies to the Board at the June meeting.

A proposal to establish guidelines for the endorsement of clinics, workshops, and symposiums, and also to study a possible accreditation of such clinics was discussed. The Board directed Mr. Joe Gieck, District #3 Director, to study the problem and present a report to the Board at the June meeting.

A discussion dealing with supplemental funds for scholarships ensued, and it was decided that this should be wholly in the realm of the Grants and Scholarship Committee.

A proposal to place limitations on expenditures for honorariums at the National Conventions was presented. Mr. Tom Healion requested that this matter be given further study, and further that he would present firm recommendations in this area at the June Board meeting.

A proposal to include in the By-Laws a provision that it would be mandatory that a member transferring his place of work from one district to another must transfer his district membership was presented.

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This proposal was approved and presented to Mr. Billy Pickard for inclusion in the By-Laws.

A discussion of Guidelines for showing the Scientific Exhibit and a look at the future sites at which the Exhibit would be shown ensued. The Guidelines will be given further study and consideration by the Executive Director.

A proposal was presented to establish liaison between the NATA and the American Corrective Therapy Association. This proposal was approved and the Association President will present a formal letter to the American Corrective Therapy Association notifying them of this action.

A proposal was presented to have a group picture taken of the Board of Directors at each June meeting. This will be arranged by the National Convention Director.

The Statement of the National Athletic Trainers Association pertaining to Drug Use and Abuse was presented, discussed and approved for dissemination to the communications media.

A report was made by the Executive Director on the Tom Reeves Memorial Fund.

A discussion was conducted pertaining to the Joint Commission meeting and recommendations to be made to the Rules Committee.

The final order of business of the Board was a discussion of the Executive Directors position. Following a discussion of various means of filling the position a secret ballot was taken and Otho Davis, Duke University, was elected to the position. The appointment was ratified by President Gunn.

The meeting was adjourned at 4:35 p.m.

RECENT ATHLETIC TRAINING LITERATURE

This list is generally restricted to those areas of specific interest to the athletic trainer. Topics belonging to the broad areas of athletics, physical education and physical therapy will usually be omitted.

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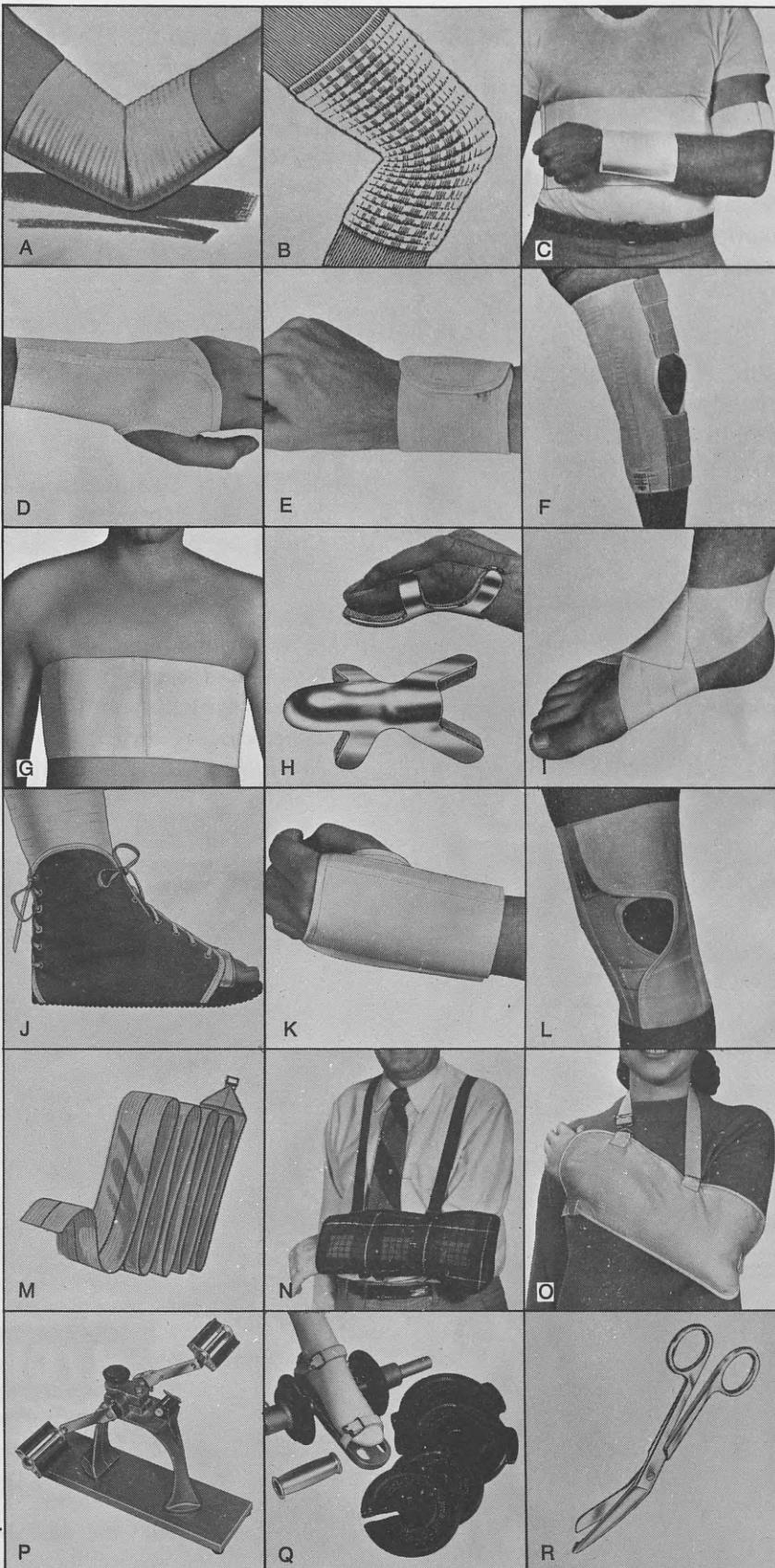
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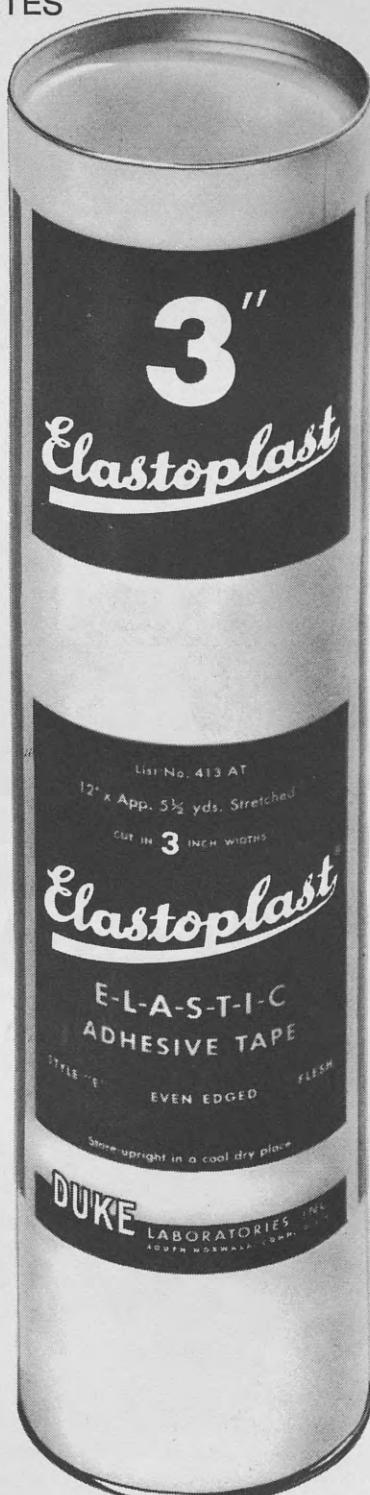
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1. All manuscripts should be typewritten on one side of 8½ x 11 inch typing paper, double-spaced throughout.

2. Photographs should be black and white prints, preferably on glossy paper. Graphs, charts or figures should be clearly drawn on white paper, in a form which will be readable when reduced for publication.

3. When references are made to other published works, the list of references should be in the following order: a) books: author, title, publisher with city and state of publication, year, page; b) articles: family names and initials of all authors, title of article, either the full journal title or the title as abbreviated in the latest edition of *List of Journals Indexed in Index Medicus*, volume, inclusive pages, date.

4. It is the understanding of *The Journal* editors that manuscripts submitted will not have been published previously; and that the author accepts responsibility for any major corrections or alterations of the manuscript.

5. It is requested that each submitting author include with the manuscript a brief biographical sketch of himself.

6. If reprints are desired, request should be made at time of manuscript submission. Each author will bear the cost of his own reprints.

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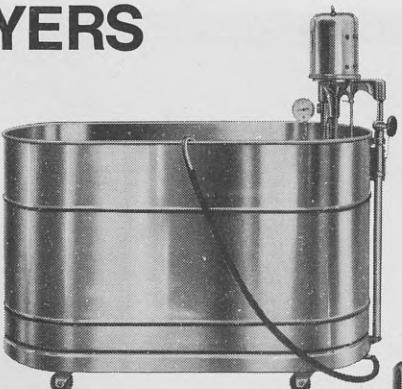
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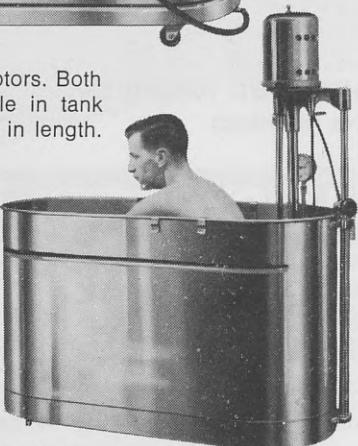
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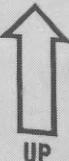
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