

The

APRIL 1958

**J
O
U
R
N
A
L**

OF THE
**NATIONAL
ATHLETIC TRAINERS
ASSOCIATION**



9th ANNUAL MEETING, MIAMI BEACH, FLORIDA

1. The first part of the document is a list of names and addresses of the members of the committee.

2. The second part of the document is a list of names and addresses of the members of the committee.

3. The third part of the document is a list of names and addresses of the members of the committee.

4. The fourth part of the document is a list of names and addresses of the members of the committee.

5. The fifth part of the document is a list of names and addresses of the members of the committee.

6. The sixth part of the document is a list of names and addresses of the members of the committee.

7. The seventh part of the document is a list of names and addresses of the members of the committee.

8. The eighth part of the document is a list of names and addresses of the members of the committee.

RESEARCH: An Empirical Study of Progressive Resistive Exercise for Chronic Shoulder Injuries (Dislocations) and the Development of An Exercise Loading Chart and Its Implication for Use

KARL K. KLEIN FACSM CCT*

Asst. Prof. Physical Education, Dept. Required Physical Education, University of Texas

*Fellow American College Sports Medicine
Certified Corrective Therapist

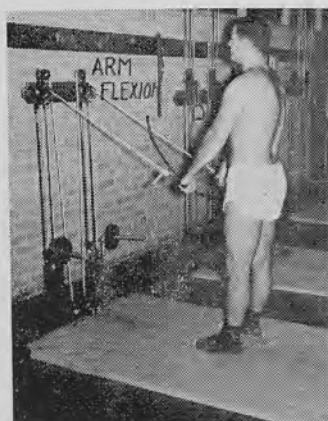
INTRODUCTION

The apparent increase in incidence as well as apparent lack of knowledge of the values of exercise in the field of prevention and Rehabilitation of shoulder problems of a chronic nature as it applies to athletics was the primary motivation for this study. The controversial opinions concerning the value of specific exercise and its potential value as a stabilizing media leaves doubt as to proper procedures. In the face of numerous incidences caused by the specific work situation specific action should be taken in an effort to assist the return to function as early as possible with the maximum of protection.

Discussion of the problem of dislocation can be traced back in the medical literature to McLaughlin and Murrays' work of 1931. One of the early emphasis reports on the use of exercises as conservative treatment by Davis² in 1936, here suggestions are given as to the specific muscular groups that should be considered in the reconditioning program with specific emphasis on the internal rotators. The major

question of determining the potential recurrent case may be difficult to evaluate and the muscular atrophy and loss of function that takes place during the few weeks "in the sling" following internal injury in itself is a problem in serious need of work if the return to safe injury free activity is to be insured. The mere fact that this problem is considered as a "disease" particularly more typical of the young active adult, chiefly the male, increases the need for protective measures. In our effort to reduce secondary incidence potential the initial injury should be considered the beginning of a chronic problem. To date there is lack of specific exercise information as well as the systematic progressive incrementing of the program dealing with the problem of pre-chronic dislocations. It was due to this existing situation and an adequate estimated supply of an case studies that the preliminary planning was carried out.

The acute significance of this problem is quite vividly brought to mind in that the Journal of the Athletic Trainers has published two articles in this particular area of discussion in 1957, one by Houys⁶ and the other by Sills.⁷ The



stress on exercise and rehabilitation was still in its infantile phase of development in this country with medical recognition of progressive resistive exercise coming into its own about 1945. Although exercise was undoubtedly utilized in many ways for shoulder problems before 1945 the evidence to indicate systematic progressive procedures, that could be utilized by other therapists as a result of experimental and even empirical practice has very limited publicity in remedial literature. Lack of such evidence has enforced the therapist to develop methods of approach to problem solutions by individual and limited study. Only those fortunate enough to be working with young active adults, who have participated in athletics are likely to have to a large enough sampling to become involved in the remedial aspect of research.

Post operative progressive Rehabilitation procedures have been adequately covered by Rudd^{3,4} and phases of its systematic application can be utilized in the recurrent situation when the specific objectives of each problem is considered: **Shoulder operation** — return to function through range of motion and protective strength building; **Shoulder dislocations** — return to function through protective strength building and motion limitation in certain specific directions.

The work of Dickson⁵ et. al. can give us a word of

encouragement concerning this problem when the reports that the majority of primary dislocations, reduced, remain so but some go on to repeat dislocation or subluxations. The work by Sills at Iowa University is one of the more scientific approaches to this specific situation in the utilization of progressive exercise. The research of this study and that of Sills apparently were started about the same time in 1954 but results were never compared throughout the process.

PURPOSE OF THE STUDY

During the past three years the Physical Education Rehabilitation Laboratory at the University of Texas has had the opportunity to work with a number of students with varying degrees of chronic dislocating shoulders⁸ through the modality of specific progressive resistive exercise. Medical information concerning each of the cases was available through the Student Health Center at the University of Texas or the family Physician.

The objectives of the study were:

- 1—To use this technique as a potential stabilizing factor against further recurrence and or reduction of incidence.
- 2—To determine systematic loading patterns from em-

(Continued on Page 11)

THE JOURNAL
of the
NATIONAL ATHLETIC TRAINERS
ASSOCIATION

The official organ of the National Athletic Trainers Association published four times yearly. Communications regarding editorial matters, submitted writings, and circulation should be addressed to:

ARTHUR L. DICKINSON, EDITOR
ARIZONA STATE
TEMPE, ARIZONA

THOMAS HEALION, ASSOCIATE EDITOR
NORTHWESTERN UNIVERSITY
EVANSTON, ILLINOIS

Material appearing may be reproduced in abstract providing credit is given The Journal. Original writings or works cited in this publication does not necessarily represent the position of the Association or its Board of Directors.

NATIONAL SECRETARY

WILLIAM NEWELL
Purdue University
West Lafayette, Indiana

PUBLIC RELATIONS CHAIRMAN

WILLIAM LINSKEY
Cambridge City Schools
Cambridge, Massachusetts

N.A.T.A. DIRECTORS

DISTRICT 1

Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
WILLIAM DAYTON
Yale University
New Haven, Connecticut

DISTRICT 2

Delaware, New Jersey, New York, Pennsylvania
CHARLES MEDLAR
Pennsylvania State University
University Park, Pennsylvania

DISTRICT 3

Maryland, North Carolina, South Carolina, Virginia, West Virginia, District of Columbia
WARREN ARIAIL
Wake Forest College
Winston-Salem, North Carolina

DISTRICT 4

Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin, and State University of Iowa
JAMES HUNT
University of Michigan
Ann Arbor, Michigan

DISTRICT 5

Iowa, Kansas, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, and the University of Colorado
FRED WAPPEL
University of Missouri
Columbia, Missouri

DISTRICT 6

Arkansas, and Texas
ROSS MOORE
Texas Western College
El Paso, Texas

DISTRICT 7

Colorado, Montana, Utah, Wyoming, Arizona, New Mexico
JAMES CONBOY
United States Air Force Academy
Denver, Colorado

DISTRICT 8

California, Idaho, Nevada, Oregon, Washington, Hawaii, Alaska
ROBERT OFFICER
University of Oregon
Eugene, Oregon

DISTRICT 9

Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, Tennessee
MARTIN BROUSSARD
Louisiana State University
Baton Rouge, Louisiana

NATIONAL PROGRAM CHAIRMAN

SAM LANKFORD
University of Florida
Gainesville, Florida

RESEARCH

In rebuttal to some opinions that athletics offers participation to only a small portion of the total school population, and therefore is of doubtful value in the educational picture, the following study is offered — Ed.

A study of 705 high schools in the state of Iowa showed that 52.3% of the boys enrolled participated in interscholastic athletics, and that 30.6% participated in two or more sports.

In a comparative study of intelligence and scholastic achievement of athletes, Huser found that while athletes at Hardin-Simmons University rated as high in scholastic ability (measured by I.Q.) as other students, they fell below the average in scholastic achievement (as measured by grade point average). Football athletes ranked lowest, while individual sport athletes ranked highest in both areas, with a moderately significant correlation between I.Q. and grade point average.

The author recommends a comprehensive personal record file kept in the athletic office, special study sessions, bi-weekly grade reports, and counseling interviews with probationary athletes as a four point program to increase scholastic achievement and establish a more cooperative spirit among athletes, coaches and general faculty members. Huser, LaVerne C., *A Comparative Study of the Intelligence and Scholastic Achievement of Hardin-Simmons University Athletes*.

In studying the effect of ultrasound, microwave diathermy and low voltage generator on forearm speed of movement, the author found a statistically significant increase ($P = .01$) in speed of movement after five minutes of ultrasonic application to the biceps brachii muscle at a power output of 0.8 w/cm. sq. The reason for this is not clear.

While a slight increase in speed of movement was noted following application of microwave diathermy, the increase was not statistically significant.

A slight decrease in movement speed was observed after fifteen minutes of low voltage stimulation, and while not at significant levels its value in a warm-up period is doubtful.

Further study of these three physical modalities is being carried out as to their effect on muscle speed of movement, reaction time and endurance.

Dickinson, Arthur L., *The Effect of Ultra-High Frequency Sound, Microwave Diathermy, and Sinusoidal Current on Speed of Movement*.

Some smokers report that they would rather risk lung cancer with a plain cigarette than acquire a hernia in trying to draw on a filter type.

Adhesive Strapping Of The Injured Knee

By Ernest R. Biggs
Ohio State University

In response to several inquiries, Ernie Biggs has presented his method of strapping the knee, which has proved satisfactory in preventing re-injury over a six year period. He has substituted his commercial knee support — the "Octopus" — for this strapping during the past year with similar success, and the reader will recognize the similarity between the taping and the support's pattern. — Ed.

When strapping the injured knee, three inch wide elastic adhesive tape is used entirely, with most of the stretch removed during application. The skin is prepared in the usual manner, and the knee bent approximately 15° with the athlete in a sitting position.

Diagram I:

This involves the basic conventional pattern of a basket weave "X".

1. The first strip is applied on the medial aspect beginning about 8" above the joint. It runs parallel to and on the lower edge of the contour of the thigh. As it crosses the joint, dip the bandage slightly under the tibial table and pull across the leg about halfway on the lateral aspect. Do not encroach on gastrocnemius function.

2. The second strip is applied laterally on the thigh following the normal contour and crossing the leg to the medial aspect — the direct opposite of No. 1.

3. This strip is applied on a diagonal beginning just off the mid line of the thigh, crosses the joint at the inferior border of the joint "hinge", and extends about four inches onto the lower leg medially.

4. Applied laterally on a diagonal just opposite No. 3. The inferior edges of strips No. 2 and No. 4 will cross at the "hinge" of the joint.

5, 6, 7, 8. Are applied in similar fashion to 1, 2, 3, and 4, overlapping one half the width, and care should be taken that these strips will not impinge on patellar function.

The above eight steps are considered a conventional style of knee strapping, and in my opinion, not sufficient to protect an unstable joint regardless of the materials used.

Diagram II:

In an attempt to find something comparable to ankle "locks", we added the next steps which we call knee locks, and are applied in a diagonal angle to the A-P joint space.

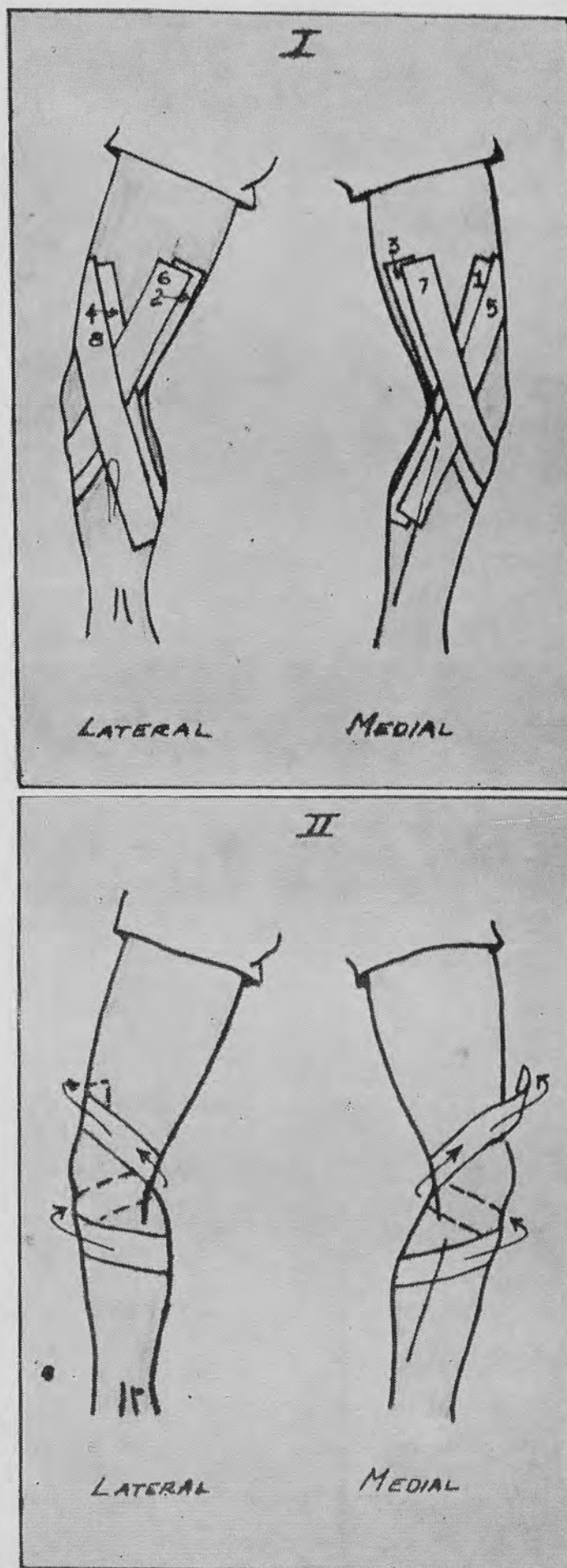
The first strip begins on the medial aspect below the patella, passes over the popliteal space and extends up on to the thigh above the patella, ending laterally.

A second strip is applied in an opposite fashion: starting laterally, crossing the leg below the joint, over the popliteal area and up to the thigh, ending medially above the patella. Both of these strips should cover the superior and inferior attachments of the tibial, and fibular, collateral ligaments.

Diagram III:

The strip illustrated adds the final touch to the complete taping, and is as necessary as any of the previous steps. It consists of a ten inch strip centered across the popliteal space, and as the ends lead medialward and lateralward towards the anterior aspect, they are split back to the middle fibers of the collateral ligaments. The now-divided strips are passed above, and below, the patella. Usually the lateralward end is applied first.

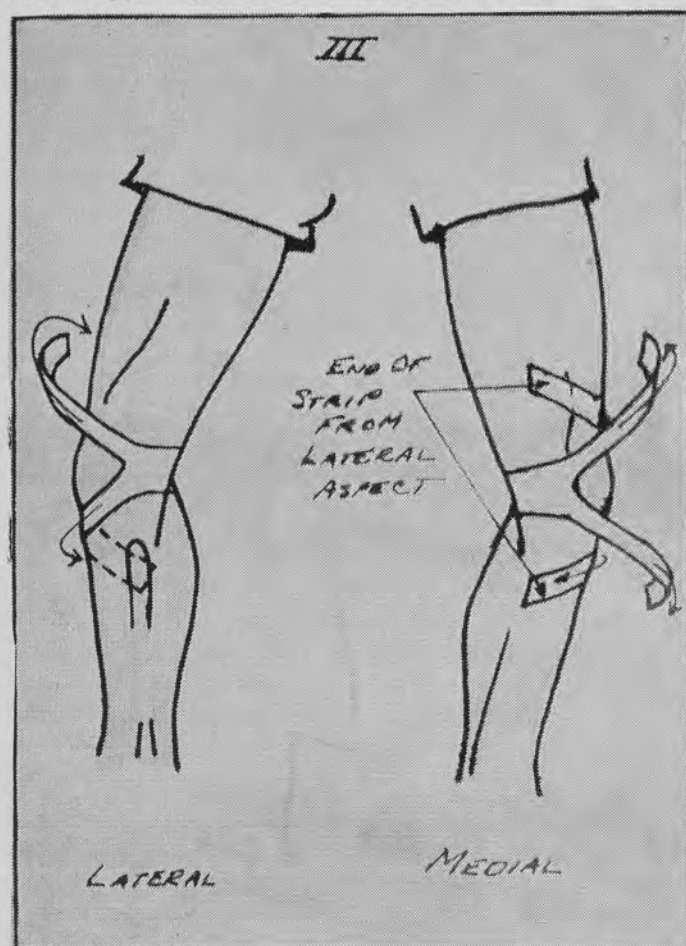
(Continued on Page 4)



More About Adhesive Strapping —

(Continued from Page 3)

With the completion of the supportive phase of the strapping, anchor strips are laid completely around the upper and lower leg, with care taken to assure no constriction results from these anchors. The completed bandage should extend approximately four inches below the tibial tubercle.



GAME FOLLOW-UP

By Jack Rockwell, RPT
Athletic Trainer, University of Colorado

Sunday is one of the busiest days here at Colorado the year around. Starting with our pre-season scrimmages, and going through our last track meet, our training room is busy from 8:30 till 12:00 every Sunday. All trainers and coaches, I am sure, are convinced that treatment to an injury on Sunday will speed up the recovery of said injury immeasurably. We have always subscribed to this theory and demand that boys injured in any sport on a Saturday report to the training room on Sunday if treatment is indicated. This past year we have gone one step further though, and set up a schedule so that all boys who had participated in whatever sport was in season, on the particular Saturday, report to the training room on Sunday morning. This was done primarily to attempt to alleviate the fatigue and soreness which follows all contact sports and most other athletic endeavors, as well. We didn't get all the boys out the first week, but in due time we had everyone in every sport that we had especially designated to come.

To begin with football, our Sunday relaxing treatment consisted of the following elements. First, each boy would be given his choice of seven minutes in the steam room or ten minutes in the full-body bathtub with the Vibra-Bath

agitating the water. This moist heat treatment develops an exceptionally good erythema and seems to help immeasurably in relaxing the individual.

After the short heat treatment the athlete is instructed to dry off and wrap in a sheet and lie down on one of the training tables.

As the boy cools off after drying, he is given a full body massage with light oil or mild liniment. This massage is a light massage with emphasis on the back, shoulders and legs. The boy is wiped thoroughly and alcohol is applied to the body. After the boy gets off the table he is instructed to take a warm shower, tapering off to a cold shower.

We feel that this bit of game follow-up treatment has helped tremendously in ridding the athletes of tension and fatigue. The first question that a lot of people ask is, "How do you get 20 or more football players done in such a short time?". First, I have one of my assistants working with me; secondly, we find that we can give a boy an adequate massage between 12 and 15 minutes. With the two of us working, we find that we are able to very satisfactorily get everyone done in the allotted time.

With our other sports we follow the same schedule, with the exception of basketball where there is a Monday night game coming up. In that particular case we cut down the time of the moist heat to three minutes. This procedure takes very little actual time from the boys' free time on Sunday, and we have had innumerable accounts of how much more relaxed and better the boys felt after this treatment. The treatment seems in a way to give the boys a psychological lift also, and we are sure it has helped the morale of the entire squad in each sport. These are probably some rather vague and theoretical words as a whole, but the whole procedure does give the boys the opportunity to do the one thing we feel is most important, that is, to relax and rest. Monday we're back on the field, court or track, but that Sunday is set aside for relaxing, resting and please, just a little bit of studying.

AN OPEN INVITATION

With this complimentary issue, the members of the National Athletic Trainers Association offer you an opportunity of subscribing to *The Journal* of the association, which is its official publication. This quarterly magazine serves as a publication source and clearing house for the research and writings about topics pertinent to the causal factors, prevention, or treatment, of athletic injuries. Included in the past year have been articles authored by member athletic trainers, physicians, physiologists, physical therapists, corrective therapists, and others vitally interested in improving athletic performance or furthering the health and safety of the young men entrusted to our care. It is our earnest hope that through the interchange of information by the *Journal* that all students participating in sports programs in secondary schools and colleges of the country will benefit by the greater knowledge available to us.

We hope that you will want each issue as a reference for your staff and for your student majors. Yearly subscription price is two dollars, which should be sent to Wm. Newell, National Secretary, 1104 Beck Lane, Lafayette, Indiana. Requests for further information concerning subscription or editorial matters may be addressed directly to the editor.

Sincerely,
Arthur L. Dickinson
Arizona State
Tempe, Arizona
Editor, *The Journal*



CONVENTION TOWN—Magnificent Miami Beach, Florida. A capital of vacationland, Miami Beach offers excellent facilities for the Annual Meetings, while boasting an ideal location for vacation fun and relaxation for the entire family, from an early morning swim to a midnight Mambo.



CONVENTION HEADQUARTERS — The famous Roney Plaza Hotel

Located directly on the ocean, with 700 feet of beach, yet in the heart of the beach shopping area, The Roney Plaza features six acres of tropical gardens, a tennis club, two putting courses, nightly top entertainment, the best of American and Continental cuisines, and of course, hospitality unlimited.

9th Annual Meetings and Program Miami Beach, June 16-17-18, 1958

Headquarters at the famous Roney Plaza Hotel

"Low Back Injuries"

Arthur Weiland, M. D., F.A.I.M., Clinical Professor of Orthopedic Surgery, University of Miami

"Foot and Ankle Injuries"

Charles Burbacher, M. D., F.A.C.S.,
Athletic Orthopedic Surgeon, University of Miami

"Shoulder Injuries, Operations and Rehabilitation"

Robert Brashear, M.D., F.A.C.S., University of Tennessee
Team Orthopedic Surgeon, Knoxville, Tennessee

"Development of the Injured Knee, and Rehabilitation Following Surgery"

Paul Hutchins, M. D. F.A.C.S.,
Jacksonville, Florida, Orthopedic Clinic,
University of Florida Team Orthopedic Surgeon

"Myositis Ossificans in Athletics"

Jack Hughston, M. D., F.A.C.S., Head Orthopedic Surgeon
Columbus, Georgia, Orthopedic Clinic

"Progressive Exercises of the Knee and Shoulder Girdle"

Karl K. Klein, Rehabilitation Laboratory,
University of Texas

"Shin Splints"

Warren Ariel, Trainer, Wake Forest College

"Care and Treatment of Pulled Muscles"

Bill Dayton, Trainer, Yale University

"Injuries in Baseball"

Don Fauls, Trainer, Florida State University

(Continued on Page 16)

Keep 'em Playing



with Pre-Cut
**PROPODY
PADS
and FELT!**

Here's a new time-saving and economical relief for minor foot ailments. Pre-cut to size, Propody Pads and Felt eliminate pad cutting-time and saves you money! (costs less than cutting your own felt.) Made of the finest long-stapled wool, they "stay put" and provide maximum protection of painful or sensitive areas.

ADDITIONAL FEATURES:

- Quickly and easily applied
- Stay fresh longer
- Mounted on plastiseal strips
- Not affected by water
- Neat, professional appearance
- Eliminates hard "packing"

SIZES:

- REGULAR:** for small irritations, corns. 600 pads—\$6.00
- LARGE:** for callouses, bunions. 200 pads—\$6.00
- FELT SHEETS:** for special shapes, 42 sheets, 3" x 6"—\$6.00

Write for folder and prices of complete E-Z walk line.

E-Z WALK CORP.

104 West 17th St. • New York 11, N. Y.

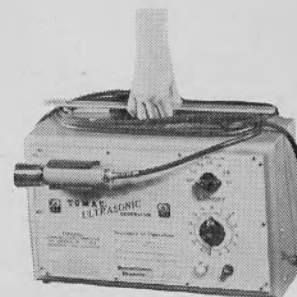
For therapeutic and exercise equipment you can depend on **Rehabilitation Products** for all your needs.

Here are only a few of the many, many pieces of therapeutic and exercise equipment which are available through Rehabilitation Products. Write today if you want our representative to call or if you wish further descriptive material. You can be sure of the finest service, greatest convenience and outstanding economy when you order from Rehabilitation Products!

Tomac Portable Ultrasonic Generator

Lightweight — only 28 lbs. Completely portable — may be hung on your training room wall. Natural quartz crystal produces reliable frequency. Output up to 15 watts over entire 5 sq. cent. transducer head surface. UL listed.

No. 1707 — Tomac Ultrasonic Generator. Each\$375.00
Less 10% discount for athletic trainers 337.50

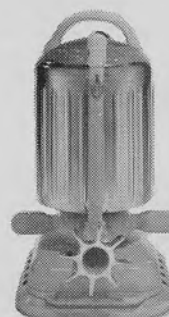


Tomac Portable Ultrasonic Generator

Portable Whirlpool Bath

Use in tanks or tubs. Requires no bolting or clamping. Weighs only 25 lbs. 115V., AC, 1/3 hp motor puts out 45 gals. per min. Finger-tip control for air mixture and force of water. Non-corrosive, withstands mild acids, soap detergents etc. Safe operation even when fully submerged. UL listed.

No. 4730 — Whirlpool Bath. Each\$285.00



Portable Whirlpool Bath

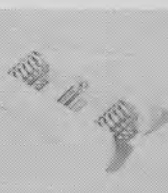
Exer-Ball

Here's a comfortable hand exercise ball with a finger ring to prevent ball from falling during finger extension. Made of soft vinyl — easily carried.

No. 2699B — Exer-Ball, Dozen\$12.50
Dozen in 3 doz. lots 10.00



Exer-Ball



Big-Grip Exerciser



Spring-Loaded Dumbbell

Big-Grip Exerciser

Develops hand and forearm muscles. Athletes like the "man-size" and feel of this exerciser with contoured nylon grips. Available in four "strengths".

No. 2698 — Big-Grip Exerciser, 10 lbs. compression. Dozen\$20.00
No. 2698A — Big-Grip Exerciser, 15 lbs. compression. Dozen 20.00
No. 2698B — Big-Grip Exerciser, 30 lbs. compression. Dozen 20.00
No. 2698C — Big-Grip Exerciser, 60 lbs. compression. Dozen 20.00

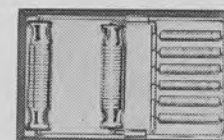
Terry Wrist Exerciser

Inexpensively priced so every member of your squad can have one. Perfect exerciser for developing arm, wrist, hand and finger muscles. Compact size provides grip by whole hand or individual fingers. Made of high quality blue steel with comfortable hand grip.

No. 2695 — Terry Wrist Exerciser, 39 lbs. compression. Dozen\$7.80
No. 2695A — Same but 85 lbs. compression. Dozen 7.80



Terry Wrist Exerciser



Giant Power Grip Hand Grip

Spring-Loaded Dumbbell

Provide graded resistance for forearm, biceps and wrist. 3-center springs remove easily and offer 15 lbs. compression per spring — maximum 75 lbs. Smooth cast iron finish. Weight per pair, 5 1/2 lbs.

No. 2696 — Spring-Loaded Dumbbell, 6 prs\$20.40
12 prs 38.40

Giant Power Grip Hand Grip

Offers maximum grip tension — yet operates smoothly and evenly. Has 6 Giant Power nickel-plated steel springs and 2 non-slip wooden grip handles. Springs easily removable to vary grip tension.

No. 2704 — Giant Power Grip Hand Grip. Dozen\$25.00



For prompt delivery ... order now!

Rehabilitation Products

A Division of American Hospital Supply Corporation
2020 Ridge Ave., Evanston 22, Illinois

NEW YORK • CHICAGO • MINNEAPOLIS • KANSAS CITY • WASHINGTON
Flushing 58, N.Y. Evanston, Ill. Minneapolis 12, Minn. N. Kansas City 16, Mo. Washington 18, D.C.
ATLANTA • DALLAS • LOS ANGELES • SAN FRANCISCO • COLUMBUS
Chamblee, Ga. Dallas 19, Texas Burbank, Calif. South San Francisco, Calif. Columbus 6, Ohio

SPORTS BULLETIN

'Faster, Faster!'

Reprinted by Permission, MD, Medical Magazine, May, 1957

Now, here, you see, it takes
all the running you can do, to
keep in the same place.

—Red Queen in Alice in
Wonderland

Twenty years ago, United States Olympic team coach Brutus Hamilton drew up a table of twenty-six imaginary unbreakable sports records labeled "The Ultimate In Human Effort." Time proved Hamilton a poor prophet: nineteen of his "ultimate" records are broken, the other seven seem sure to follow.

More than half the world track and field records have been shattered in the last two years alone. In swimming, new world records have been set for every event since 1949. No precise measurements exist for other sports, such as boxing, but the same trend applies to all. A latter-day champion like Rocky Marciano could probably have belted Jack Dempsey or John L. Sullivan around the ring.

Man and Boy. More intriguing is the fact that boys today run faster, jump higher and throw harder than men could a generation or two ago. American high school athletes have topped nine of the twelve world track and field records which were standard for men in the Jim Thorpe era of 1912. Sample comparisons: in 1912, man's best effort for the 100-yard dash was 9.6 seconds; boy's best is now 9.3. Man's high jump was 6 ft. 7 in., boy's is now three inches higher. Man's javelin throw was 204 ft. 5/8 in., modern boy's is 219 feet.

One reason for improved performance is increasing size and strength of athletes, spotlighted in baseball last

year when National League players hit a record breaking 1075 home runs. A survey showed players were on average two inches taller, 17 lbs. heavier than twenty years ago when such stars as Mel Ott and Joe Medwick were in their prime. Old-timer Ott stood 5 ft. 9 1/2 in., weighed 165 lbs., was a leading home run hitter of his time. Today's home run hitter is built more like Brooklyn's Duke Snider who is 6 ft., weighs 190 lbs.

In basketball two decades ago an agile six-footer could hold his own on any court; six-foot-six was considered really big. Today Wilt (The Stilt) Chamberlain (Kansas University) towers 7 feet, packs 230 lbs. on his outsized frame. No shambling acromegalic freak, Wilt moves with the true athlete's grace and speed, scores 30 points or more in a game.

Diet. Modern young giants of arena and ball park are not nourished on any super-diet. The A.M.A. Council on Foods and Nutrition concluded three years ago that feeding the star athlete "requires only a common sense balance between energy intake, output and right body weight", it is basically no different from feeding the average citizen.

Athletes must take in about 100 per cent more calories than required for moderately sedentary persons. Proteins usually supply 10 to 15 per cent of the athlete's calories, fats 20 to 35 per cent, carbohydrates the rest. Habit plays an important part; athletes perform best on foods to which they are accustomed. At the Olympic Games, most teams took their chefs along, were well supplied with familiar national foods.

(Continued on Page 10)



Allentown High, Pa.
Pueblo High, Tucson, Ariz.
Wilson High, Easton, Pa.

Carr Sox

The Original Shin Guard Stocking

Designed and Patented by

RICHARD E. CARR

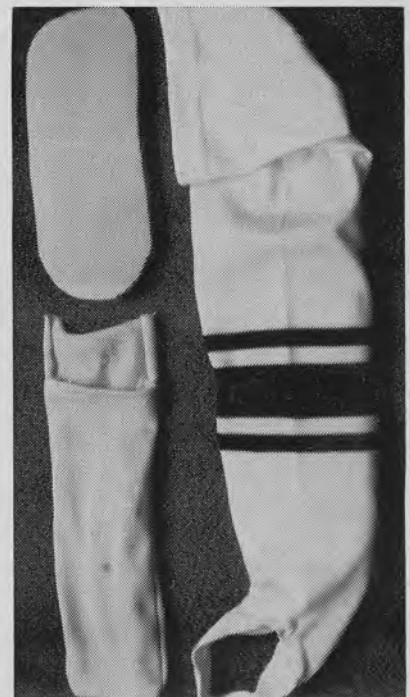
Head Trainer, Arizona University

Prevents Painful Shin Injuries In
Football, Soccer and Ice Hockey

Advantages of Carr Sox

1. Fits the contour of the leg
2. Light weight
3. Can not injure other players
4. Stays in place without tape
5. It can be removed for laundering
6. It offers adequate protection for the exposed area of the shins

Arizona U. — Arizona State
Alma College
Indiana U. — Lafayette College
Penn State U. — Rice



Nylon and durene stocking
with ensolite padding.
\$4.10 Pair

CARR SOX — 3530 E. Hampton, Tucson, Arizona

DON'T WASTE ANY MORE TIME WITH PARTIAL TREATMENTS

BIKE announces a new
1-2 treatment that

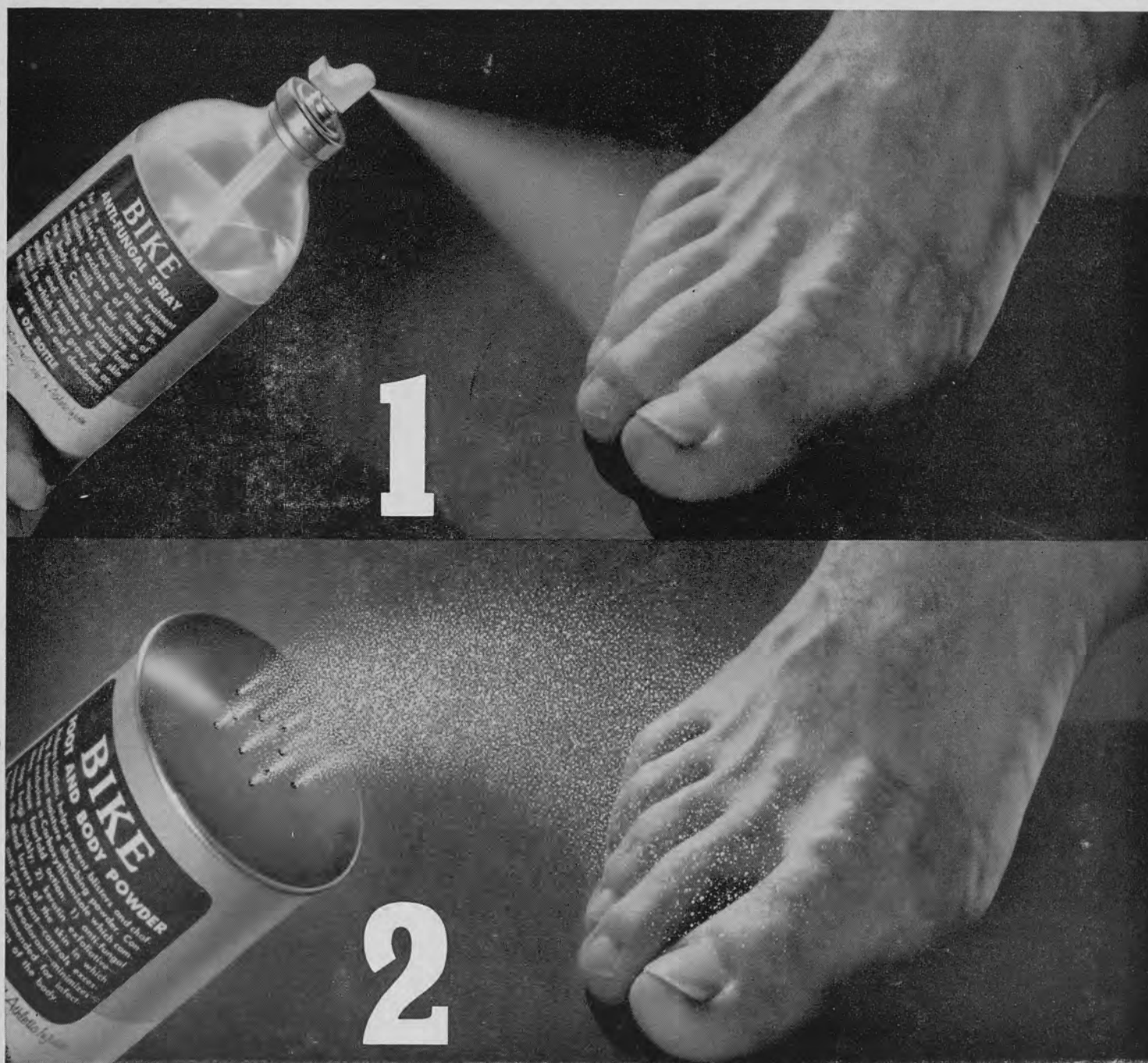
STOPS ATHLETE'S FOOT

WITH THESE EXCLUSIVE
TRAINING ROOM CHEMICALS



1. BIKE ANTI-FUNGAL SPRAY is applied directly for quick control of serious cases of Athlete's Foot, supporter rash, and other ringworm infections. 5½-oz. spray bottle.

2. BIKE FOOT AND BODY POWDER acts as a prophylaxis in powder box "foot bath," in shoes and socks. 5½-oz. shaker can, 10- and 25-lb. bags.



Now from the Bike Laboratories comes a totally new and better treatment for the common fungus infection known as Athlete's Foot. This new 1-2 treatment is part of the complete line of Bike trainers supplies for the locker room.

Here the exclusive chemical ingredient "a-Carboxythioanisole" is put up in both liquid spray and powder form. This ingredient was tested in a leading university skin clinic on the most stubborn cases of Athlete's Foot (cases which other remedies had failed to cure). The tests proved conclusively that Bike's 1-2 treatment (1) gets rid of Athlete's Foot in 75% to 94% of the

cases, and (2) prevents its recurrence. That's because it works in several related ways:

Keratin exfoliative agent—sloughs off dead tissue.

Penetrating agent—reaches the deeper infected layers of the skin.

Fungus poison—gets rid of all the fungi that cause Athlete's Foot, prevents new infection.

Anti-perspirant—reduces the excessive sweating that stimulates fungus growth . . . makes the skin uninhabitable for fungus.

Send for free lab report
Write today for your free copy.

Laboratory tests and findings on this Bike 1-2 treatment are summarized in a 4-page report, "A New Development in the Treatment of Fungus Infections."

Sold only by sporting goods dealers

BIKE

THE KENDALL COMPANY
BIKE WEB SALES DIVISION

309 W. Jackson Boulevard • Chicago 6, Illinois

ONE SOURCE FOR ALL YOUR TRAINERS SUPPLIES (Supporters, Tapes, Wraps, Pads, First Aid and Chemical Products)

'Faster, Faster!'

(Continued from Page 7)

Generally exploded is the theory that performance can be improved by diet supplements taken just before the game. Some athletes nevertheless persist in dosing themselves with sugar and honey, wheat ger moil, dextrose tablets, high protein concoctions, probably get a psychologic if not physiological lift. Example: Lon Spurrier, U. S. half-miler in the recent Olympic Games, consumed up to 50 assorted pills a day.

Physiology. Somatotype* can influence athletic prowess. In general, mesomorphs and ecto-mesomorphs do best. Ectomorphs lack needed strength for many events but often score highly in running, jumping, hurdling and vaulting. Endomorphs are handicapped by too much dead weight.

High oxygen intake is essential for endurance events. Champion distance runners usually have an oxygen capacity of four liters per minute or better; a few have more than five l.p.m.

Also important are the blood pH, terminal pulse rate and lactic acid concentration as indices of resistance to internal stress. The ordinary person can tolerate a blood pH of about 7.2, a lactic acid concentration of 70 mg. per 100 cc., and may develop a terminal pulse rate of 200 after strenuous exercise. The champion athlete may tolerate a pH as low as 6.82; a lactic acid concentration of 200 mg. per 100 cc., and will seldom develop a pulse rate of more than 160.

Training. Physiologic research has helped athletes use their bodies to best effect. One who benefited was Roger Bannister, the physician who was the first man in modern history to run a 4-minute mile.

Dr. Thomas K. Cureton tested Bannister in 1952, found him "a remarkable running type" with "beautiful coordinations" of running and breathing. His assets included powerful heart and lungs, long legs, springy feet. He had a maximum oxygen intake estimated at 5.16 liters per minute, a pulse rate of only 108 immediately after the five-minute Harvard Step Test. But Dr. Cureton also found some curious defects. Bannister passed only seven of 18 motor fitness tests, missing all three of the balance tests, two of the flexibility tests, the breath holding test and all of the muscular endurance tests.

Dr. Cureton recommended more training with particular emphasis on the legs and breath holding, predicting that Bannister could achieve the four-minute mark if he tried hard enough. A year later, at Oxford, England, a much improved Bannister ran the mile in a blazing 3 minutes 59.4 seconds. Still later, he lowered the mark to 3.58.8.

Mind Over Muscle. Sports records can be influenced by psychologic factors, e.g., when lesser athletes duplicate a feat pioneered by a star performer. Half a dozen runners cracked the four-minute mile after Bannister proved that it could be done.

Why was Bannister first? Part of the reason may be found in his showing on Cattell's 16-factor personality test. He rated extremely high in the E and Q-2 factors indicating dominance and independence of spirit; was very high also in F factor suggesting animation rather than despondency. Bannister himself said that "physically the difference between the world's twelve best runners comes down to less than 1 per cent." But there remains an important difference in the will to win.

Emil Zatopek, great Czech distance runner, was another who had the champion's urge. To train his will (and incidentally his lungs) he used to hold his breath as he walked to work; kept holding it sometimes until he fell unconscious in the road. He also knew a few tricks of psy-

(Continued on Page 12)

ACROSS MY DESK



SAME MUSIC, DIFFERENT WORDS

One year ago I commented (The Journal, Vol. 1, No. 2) on one oversight in the philosophy of progressive education — that being while the student learned thru "experiences", he generally didn't know how to spell well enough to describe anything that he absorbed—and cited a few words to illustrate this point. Since then, the Russians have shot everything but a football into outer space, and a few other voices have been raised questioning some of our educational procedures. Again, after looking over a list of complaints written out by students desiring consultation at our student health service, I copied several in their original spelling. For example:

compound fraction of arm
chest whiz
hear ach
sore ear drumb
acknee on face
ingroin toenail
pulled mussel
hey feaver shot
crinked neck
bad el Bough
murmor in my hart
pyrea
dyrea
asianflue shot
polo vassein
symple ryanitis
titnus shot
bad coff
a horable cold
proctate trouble
urinal blotter
cold in my kidneys

But the two real gassers were the boys entering the clinic for a ultra-violent ray treatment, and for a case of austio-militis. Progressive education or preposterous education?

CONVENTION TIME

You are invited to focus your orbs on the timetable for invasion of Miami Beach on June 16-17-18. General Program Chairman Lankford has done a superb job in assembling speakers and pertinent topics for the ninth annual meetings.

The social committee — all posessing over-active thyroids — have assured me that there will be no idle hands, and that such common entertainment as cards or reading will be as out of place as a carburator on a wheelbarrow. For those members eager for diversion or wishing to supplement present income, gun-running to Cuba will be available nightly.

ORDER OF BUSINESS

The membership committee has unanimously voted to institute a ladies auxiliary to our association. However, the committee is deadlocked over whether wives should be eligible or not.

Research —

(Continued from Page 1)

- pirical practice and individual prescription of exercise.
- 3—To develop a progressive loading chart for each of the exercises of the planned series.
 - 4—To work specifically with the muscle groups involved in the relationship of muscular support, i. e. **Intrinsic group**—subscapularis, teris major, supraspinatus and the **Extrinsic group**—anterior deltoid, pectorals, latissimus dorsi, and medial deltoid.
 - 5—To encourage the student, after completion of the exercise period, to take part in activity but to develop habit patterns of action that would keep him within range of safe movement limits.

PROCEDURES

Following the selection of the exercise pattern each case was worked with individually and progressively during the exercise program in which the following factors were considered:

- 1—Weight loading of the individual exercises were based on muscular tolerance to lift a set amount of weight ten times. The 10-10-10 series was used. This pattern was maintained for each of the exercises utilized.
- 2—Exercise patterns were based on a three day per week program.
- 3—Weight programs were incremented at the beginning of each new week. This was based on individual tolerance to lift the added weight loading according to tolerance and empirical judgment.
- 4—Individual exercise programs were carried on from six to eight weeks.
- 5—Bilateral movement was utilized throughout the exercise period with the weight loading based on the capacity of the involved side. This method was used because of its posturing and symmetry effects on body function.

THE EXERCISE LOADING CHART

The development of this progressive weight loading and weekly incrementing chart has been computed from the mean score of the weight loading used by the students participating in the Rehabilitation program. The number of dislocation and the subluxation ranged from a minimum of three within a period of a few weeks to twenty plus over a period of a few years. The success of the exercise program is based on student reaction in:

(Continued on Page 13)

BIBLIOGRAPHY

Codeman, E. A., "The Shoulder-Rupture of the Supraspinatus Tendon and other Lesions in or about the Subacromial-Bursa". Thomas Todd & Co. Boston, 1934.

Kraus, H. Principles & Practices of Therapeutic Exercises, Charles C. Thomas, Publisher, Springfield, Ill., 1949, p. 151.

McLaughlin, H. L., "Shoulder Injuries", The American Journal of Surgery, LXXIX, 3 Sept., 1947.

McLaughlin, H. L., "Lesions of the Musculatendinous Cuff of the Shoulder", Journal American Medicine Assoc. 128: 563-568, June 23, 1945.

Moseley, H. F., "Disorders of the Shoulder" Ciba Chronical Symposia 2:251 1950 Ciba Pharmaceutical Products, Inc., Summit, New Jersey, 1950.

Voss, D. E., Knott, M and Kabot, H., "The Application of Neuromuscular Facilitation in the Treatment of Shoulder Disabilities, The Physical Therapy Review. 33:10, Oct., 1953.



**Time Is Money. Save Both
With An N-K P.R.E. Unit.
Investigate The MANY
Advantages.**

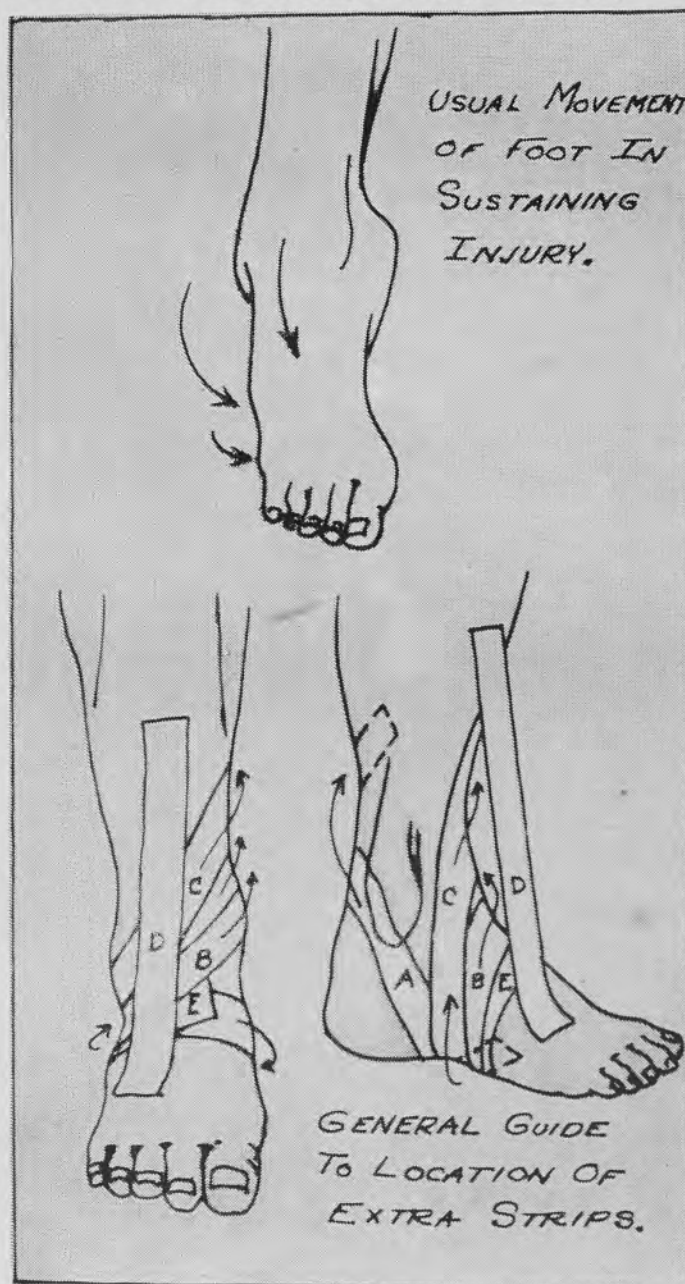
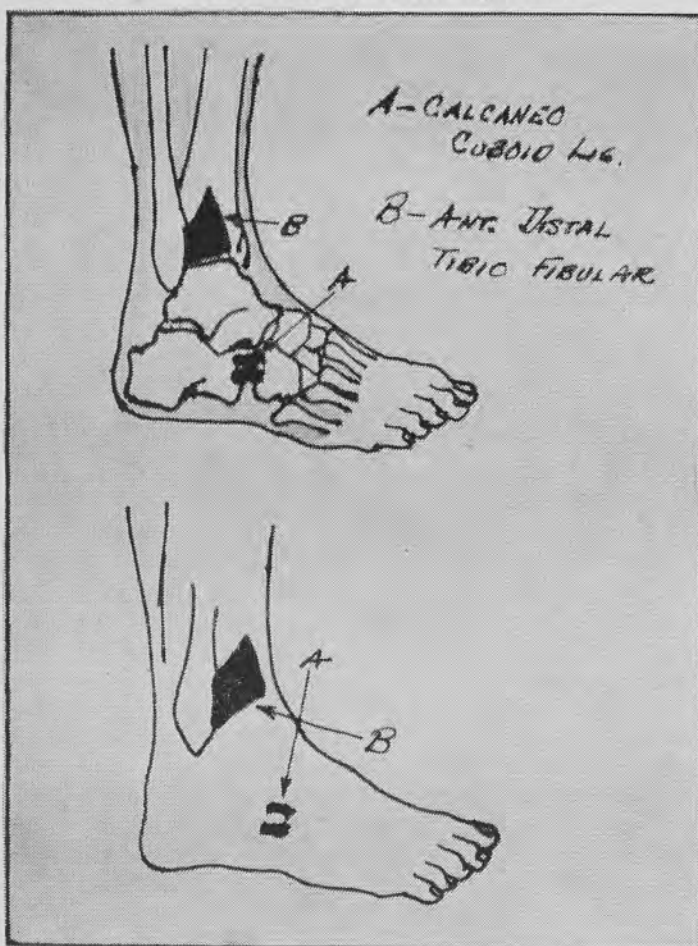
FOR INFORMATION:

N-K PRODUCTS COMPANY
P. O. BOX 657 SANTA CRUZ, CALIFORNIA

ADDITIONAL SUPPORT FOR THE INJURED ANKLE AND FOOT

Sprains of the distal tibio-fibular (B) ligament, or the calcaneo-cuboid ligament (A) present a problem in adhesive strapping. No amount of tape will stabilize the serious diastasis, but for the mild or moderate sprain, or for the boy coming back to competition after a severe injury of either of these structures, the following may be of value.

The described strips of adhesive are added to the conventional basket weave which has not been illustrated. This support largely limits the adduction-inversion plus rotation motion which was responsible for the initial injury. Only the basic direction of the extra strips are illustrated, and generally one or more additional strips are employed where most needed. Also, some of the leads may be left out, dependent upon the individual injury. For instance, strips such as "B" & "E" are not usually employed in distal tibio-fibular sprains, and lengths "A" or "D" may not be necessary in sprains of the calcaneo cuboid ligaments.



'Faster, Faster!'

(Continued from Page 11)

chologic warfare in sports. In the 1952 Olympic marathon, Zatopec caught up with England's Jim Peters at the 15-mile mark. Said he blithely: "Excuse me, I haven't run a marathon before, but don't you think we ought to go a bit faster?" Unnerved and exhausted, Peters collapsed a mile later while Zatopec ran on to win.

What is the ultimate in human athletic effort? Some Toronto researchers recently tested 2700 college athletes in basic factors of strength and skill, found that performance in practically all sports could be increased 25 per cent with better training. Their calculation took no account of possible improvement through more scientific diets, greater contribution of physicians and physiologists to the new branch of sports medicine.

One prediction seems safe. Like Alice in Wonderland, athletes must run faster and faster merely to keep their place in the sports parade.

FIFTY YEARS OF ATHLETIC PROGRESS

Table compares winning Olympic performance, 1906-56, in cross section of men's track and field events.

EVENT	1906	1956
100-Meter Dash	11.2 sec.	10.5 sec.
1500-Meter Run	4 min. 12 sec.	3 min. 31.2 sec.
Marathon (26 Mi.)	2 hrs. 51 min. 23.6 sec.	2 hrs. 25 min.
Pole Vault	11 ft. 6 in.	14 ft. 11 7/8 in.
Broad Jump	23 ft. 7 1/2 in.	25 ft. 8 1/4 in.
High Jump	5 ft. 9 7/8 in.	6 ft. 11 1/4 in.
Shotput	40 ft. 4 4/5 in.	60 ft. 11 in.
Javelin	175 ft. 6 in.	281 ft. 2 1/4 in.
Discus	136 ft. 1/3 in.	184 ft. 11 in.

Research —

(Continued from Page 11)

- 1—Reduction of recurrence if not practical elimination of incidence.
- 2—Increased ability to carry in more "normal" activity.
- 3—The feeling of security of the involved joint in enabling greater freedom of movement.

SUMMARY

The development of this exercise sequence and loading chart was the result of efforts to be of assistance to a group of subjects exposed to numerous injury incidences. Progressive weight loading is based on the mean scores and therefore it must be recognized that minor adjustments may have to be made in future applications. The amount of friction of the pulley apparatus as indicated on Table I should be determined according to the piece of apparatus used so that accurate loading may be administered. The exercise chart is only prepared for a period of five weeks but may be extended beyond this point by extending the length of each exercise series up to two weeks or by increasing the weight loading beyond the 5 week period. In the inward Rotation and Arm Adduction apparently the major strength increase came within the first three to four weeks. Beyond this point the weight loading increment decreases. This coincides with the results reported by Sills.⁷ The same effect also is apparent in most of the Extrinsic muscle groups.

CONCLUSIONS

The evidence gained from the application of the prescribed exercise pattern to the students utilized in the study gives encouraging evidence that specific progressive exercise

is beneficial to the reduction of dislocation incidence. It is to be noted that during the exercise period the program supervisor has an opportunity to re-educate the student in the practical application and use of the involved extremity. This education phase is believed to be a valuable asset in the program outcomes.

The application of the exercise is not intended to be a total substitute for possible surgery and the subject should be made aware of this fact. In the majority of cases in the initial group the planned system has proved effective in reaching the program objectives. The majority of these students have gone back into activity situations. Occasionally some of them will stop back in the laboratory for an exercise series of maintenance for a week or two but this is the exception to the rule.

If the functional stability and reduction of incidences is based on the strengthening of muscular support alone then it is apparent that maintenance procedures will have to be continued over an unknown period of time. This conclusion is drawn from the work of McMorris and Elkin⁹ that gives evidence of strength losses of 55 per cent following completion of progressive resistive exercises of the muscular of the arm and shoulder area. Work done by Gallagher and DeLorme¹⁰ with adolescence indicates that there was no strength loss as much as a year following progressive exercise. This work was done with the musculature of the legs. The fact that different body parts were used in these studies would indicate that the maintenance of strength varies and possibly it is due to the use and stress applied that permits maintenance. On the basis of McMorris and Elkin's work maintenance exercise would be indicated for

(Continued from Page 10)

Table I
PROGRESSIVE EXERCISE LOADING CHART FOR CHRONIC SHOULDER PROGRESS
(based on mean weight in pounds)

Exercise system based on Maximum 10-10-10 Series

INWARD ROTATION (SUBSCAPULARIS)		ARM ADDUCTION LATERAL PULLS		ARM FLEXION (from elevation)		LATERAL RAISES (SUPRASPINATUS)	
Wall pulley	(2)*	Wall pulley	(7)*	Wall pulley	(2)	Hand weights	
		(Overhead)				(only to 90°)	
Starting Wt.	(5)	Starting Wt.	(8.5)	Starting Wt.	(17)	Starting wt.	(5)
Total	7	Total	15.5	Total	(19)	Total	5
Weekly increment		Weekly increment		Weekly increment		Weekly increment	
2nd	3.5 (10.5)	2nd	4.5	2nd	6.	2nd	5 plus reps
3rd	3.3 (13.8)	3rd	4.5	3rd	5.5	3rd	10 plus reps
4th	4.0 (17.8)	4th	2.0	4th	3.1	4th	10 plus reps
5th	2.0 (19.8)	5th	1.2	5th	3.4	5th	10 plus reps

CURLS (BICEPS)		ARM ABDUCTION HORIZONTAL (side arm extension)		PRONE PRESS (PECTORALS ANT. DELTOIDS)		MILITARY PRESS (TRICEPS, MED. DELTOIDS)	
Bar	15	Wall pulley	(2)	Bar	(15)	Bar	(15)
Starting Wt.	(36.6)	Starting Wt.	(6.1)	Starting Wt.	(52)	Starting Wt.	(32.5)
Total	(51.6)	Total	8.1	Total	67	Total	47.5
Weekly increment		Weekly increment		Weekly increment		Weekly increment	
2nd	7.8	2nd	3.6	2nd	7.0	2nd	6.2
3rd	6.0	3rd	3.6	3rd	7.0	3rd	6.3
4th	5.0	4th	3.2	4th	10.0	4th	5.0
5th	2.0	5th	0.0	5th	0.0	5th	0.0

NOTE—Each weekly raise is added to the total of the previous weeks weight load used.
i.e. Inward Rotation chart above.

The specific amount of weight assigned to the wall pulley represents amount of friction resistance measured against a spring scale through a steady movement. It is recorded as part of the actual weight load lifted in the exercise. Exercise description in appendix.

Research —

(Continued from Page 13)

shoulder cases as described in this study. On this basis the six second isometric contraction system as advocated by Muller¹¹ would be the answer to protective maintenance.

APPENDIX

EXERCISE DESCRIPTION

Inward Rotation — Supine facing away from pulleys, just less than shoulder height on mat, have upper weight handles in hands, inward rotate hand and arm toward belt, keeping elbows at right angle. Return to starting position. Repeat exercise.

Arm Adduction — Facing pulley weight, grasp overhead handles, pull arms diagonally side downward elbows straight. Return to starting position slowly. Repeat exercise.

Arm Flexion — Facing pulleys, grasp handles directly downward, pull arms directly down to sides, return slowly. Repeat exercise.

Lateral Raises — Grasp dumbbells, slowly raise arms to 90°, lower slowly. Repeat exercise.

Curls — Standing position, grasp bar hands shoulder width apart, slowly flex elbows to maximum, return slowly to straight arm position. Repeat exercise.

Arm Abduction Horizontal — Facing pulley weights, grasp handles directly forward, abduct arms side horizontal to 90° and return slowly. Repeat exercise.

Prone Press — Supine, grasp bar wide hand position, press to full arm extension and return weight to chest. Repeat exercise.

Military Press — Standing position, grasp bar about shoulder width apart, flex arms weight at chest, press arms to full extension above head and return to chest position. Repeat exercise.

REFERENCES

1. McLaughlin, H. L., Murray, C. R. "Dislocation of the Shoulder," *Journal American Medical Assn.*, 96, 337-340, 1931.
2. Davis, A. G. "A Conservative Treatment for Ha-

bitual Dislocation of the Shoulder," *Journal American Medical Assn.*, 107:1012, Sept. 26, 1936.

3. Rudd, J. L. "Exercises Following The Bankart Operation For Recurrent Shoulder Dislocations," *Archives of Physical Medicine*, 33:353-57, June 1952.

4. Rudd, J. L. "Rehabilitation Following Surgical Repair of Shoulder Dislocation," *Journal Assn. for Physical and Mental Rehabilitation*, 8:178-183, Nov., Dec. 1954.

5. Dickson, J. A., Humphries, A. W., O'Dell, H. W., "Recurrent Dislocation of the Shoulder," *Williams & Wilkins Co.*, Baltimore, Md. 1953.

6. Houy, Clinton, "Dislocations of the Shoulder Joint," *Journal of the National Athletic Training Assn.*, p. 3-5, April 1957.

7. Sills, Frank, "Exercise for Shoulder Dislocations," *Journal of the National Athletic Trainers Assn.*, p. 1, 3, Oct. 1957.

8. Klein, K. K., "Observation of Specific Exercise and the Stabilizing Effect of Chronic Dislocation." Papers presented Texas Louisiana Chapter Assn. for Physical and Mental Rehabilitation. Waso, April, 1957 National Convention Assn. P.M.R. at Chicago, July 1957, Southwest Athletic Trainers, Waco, Aug. 1957.

9. McMorris, R. O. and Elkins, E. C. "A Study of Production and Evaluation of Muscular Hypertrophy," *Archives of Physical Medicine and Rehabilitation*, Vol. XXXV: 7 July, 1954.

10. Gallagher, J. R. and DeLorme, T. L., "The Use of the Technique of Progressive Resistive Exercise in Adolescence," *Journal Bone and Joint Surgery*, 31(A): 847, Oct. 1949.

11. Muller, E. A., "The Regulation of Muscular Strength," *Journal of the Association for Physical and Mental Rehabilitation*, 11:47, Mar.-April, 1957.

Table 2

Case study records of incidence pre and post-exercise period.

Subject	Pre-Program Dislocation or Subluxation Incidence	Exercise Program Started	Post-Program Incidence
W. C.	R 18 + X	Sept. 1954	None
J. W.	R 5X	1955	None reported
J. C.	R 3X	Mar. 1956	None reported
R. T.	R 6X	Sept. 1955	None reported
H. D.	R 3 + X	Sept. 1955	1, operation scheduled
A. H.	R 2X	Nov. 1955	None reported
P. B.	L 20 + X	Feb. 1956	1 Nov., 1956 (Water Polo) exercise, none since
L. F.	L 20 X operated	Oct. 1955	None reported
J. J.	R, L 5	Sept. 1954	only 1 incidence
T. B.	L Subluxation	Oct. 1955	None reported
C. R.	R 5X	Sept. 1955	1 Feb., 1956 dropped from school
W. B.	L 8 + X	Oct. 1955	lessened incidence
T. C.	L 5 + X	Mar. 1955	lessened incidence
H. M.	L Subluxation	Feb. 1957	None reported

TAPE WORM



MEXSANA MEDICATED POWDER

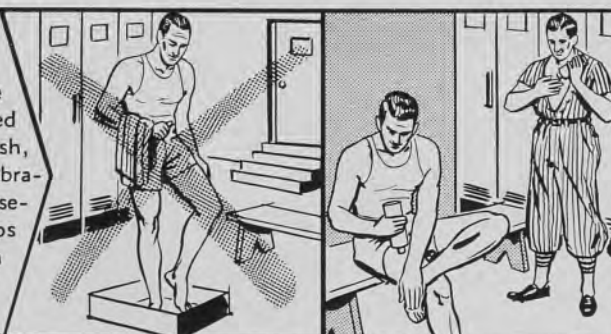
"Conditions To Prevent Lost Time"

Routine procedure of dusting Mexsana Powder into sports shoes, sweat socks, and street shoes reduces athlete's foot infection to a minimum, and establishes an important routine conditioning pattern for maintaining complete epithelial normalcy of feet. Mexsana Powder's exceptionally fine texture better absorbs moisture and helps control

germs in difficult-to-reach prints of the skin. The Hexachlorophene in Mexsana Powder is an effective antiseptic that destroys up to 95% of irritating bacteria on the surface of the skin. By clinging to the skin, Mexsana Powder buffers chafe and skin rub due to socks and shoes... Order Mexsana Powder from your drug or sporting goods store.



Eliminate risk of infection. Routine use of Mexsana Medicated Powder prevents rash, gall, itch, chafing, abrasions in all strap or close-fitting areas—helps keep athlete's feet in good condition.



Samples and literature on request. Write Plough, Inc., Memphis, Tenn.

Order from your neighborhood drug store.

MUSTEROLE *Flushes Congestion to Ease Pain Best for Fast Relief of Muscular Soreness, Aches, Pains, Strains*

Musterole has always been a popular counter-irritant rub among coaches and trainers. Today, new, improved Musterole is far more effective. Super-stimulating oil of mustard plus the amazing pain-reliever, GM-7 (glycol monosalicylate), now makes this new, modern-formula Musterole give better, faster-acting, longer-lasting relief for sore, stiff muscles. Musterole gives deeper, warming "baked heat" relief of muscular aches, pains and strains. Flushes blood through congested areas for prompt relief, and helps promote rapid healing. You can depend on Musterole whenever your players need a really effective counter-irritant... Order Musterole from your regular store... or your sporting goods dealer will order for you.



Samples on request. Write Plough, Inc., Memphis, Tenn.

DIET FOR A BOXER

By **CHUCK MEDLAR**, Athletic Trainer
Pennsylvania State College

We feel that an ideal diet for a training season should include: a moderate quantity of protein foods (12-15%); an abundance of carbohydrates (60%); an amount of fatty foods (28%) and an ample supply of fresh fruits and vegetables. This, in terms of grams, would be: 150-160 grams of protein daily, about 175 grams of fat and 850 grams of carbohydrates.

In our diet the essential requirements per 24 hours are as follows:

1. Meat: At least 12 ounces daily, served at least twice daily. A half pound of beef liver should be eaten weekly.
2. Eggs: At least one per day.
3. Milk: At least one pint daily.
4. Whole grain or enriched cereals: Cooked cereals are best; should be served daily. Breads should be eaten according to individual's weight.
5. Fruits: At least two servings daily. One serving should be citrus fruit; four ounces per day of citrus fruit.
6. Vegetables: Two servings daily. One serving must be green, leafy or yellow.
7. Potatoes: Eaten according to individual's weight. If weight is satisfactory, four ounces per day.
8. Butter: Again, eaten, according to individual's weight. If weight is satisfactory, two ounces daily.

As mentioned before, cooked cereals are better than dry cereals as they have more caloric value. An important food during the season, if there is no weight making problem, is sugar carbohydrates. They have high caloric and energy giving value. Dried fruits such as raisins, figs, prunes and dates serve as natural laxatives and prevent constipation. Rye, whole wheat and corn bread are better than white bread. Meat should be broiled or boiled and not fried.

We feel that the maximum number of calories per 24 hours are as follows:

Heavyweight	3,500
Middle Divisions	3,000
Lower Weights	2,800

We know that this is a somewhat deficient diet, but it is necessary to avoid gaining weight during the season and making it more difficult to make weight on the day of the meet.

We also have to sometimes go on this assumption that some boys will eat extensively over the week end after the meet and gain weight. Therefore, they must drastically cut their diet the following week to make weight.

For those boys who must lose weight, naturally eliminating starchy foods, fluids and especially carbohydrates, is a must.

For those boys who must gain weight, the intake of the carbohydrates, sugar and starchy foods, and of fluids are helpful. Stews are also good if there is a need to gain weight.

A schedule for our boxers on the day of a meet might be of interest. They weigh in five hours before the meet.

Immediately after the weigh-in they are given cups of beef broth or bouillon. The pre-meet meal is eaten about four hours before the start of the contest and consists of the following:

1. Twelve-ounce glass of orange juice.
2. Steak — 10 to 12 ounces.
3. Small baked potato.
4. Peas.
5. Melba toast — 2 slices.
6. Butter — 2 pats.
7. Honey.
8. Tea.
9. Custard or fruit cup.

If a boy was sweating out during the week to make weight, sometimes he is allowed extra fluid at this time, as he has already weighed in and need not worry about his weight at meet time.

This is the routine diet on the days of the meet during dual meet season. However, if a boy is competing in a tournament, the pre-meet meal might lack the baked potato and sometimes toast and butter. A salad may be substituted. The reason for this is that the boy may have to box the following day and must again make weight.

More About Miami Beach Program —

(Continued from Page 5)

"The Role of Vitamins in Athletics"

Lloyd Boughton, Ph. D., Head of Pharmacy,
Cramer Chemical Company

"Equipment; Its Care and Fitting"

Wayne Rudy, Trainer, Southern Methodist University

"Team Physician Views in Athletics"

W. W. McChesney, M. D.,
University Student Health Service, University of Florida

"Drugs in Athletics"

Henry Andel, Trainer, Georgia Tech

"Shoulder Injuries and Dislocations"

Duke Wyre, Trainer, University of Maryland

"Knee Injuries in Sports — Their Care and Rehabilitation"

Ken Rawlinson, Trainer, University of Oklahoma

... Plus planned entertainment such as —

Fashion show for the women

Moonlight boat ride on Miami Bay

"Splash Party" conducted by Florence Chadwick

For reservations, write to:

Mrs. Tommy Thompson, Mgr
Roney Plaza Hotel,
Miami Beach, Florida

Now is the time to start planning . . .

Logan, Inc. ... MAKES THE MOST COMPLETE LINE OF

TRAINING ROOM SUPPLIES AND EQUIPMENT



WHIRLPOOLS

MODELS • PRICES • SPECIFICATIONS

'GIANT' A-1 (stainless Steel) — \$435

48" long x 21" wide x 29" deep

OLYMPIC A2 (Stainless Steel) \$435

41" long x 21" wide x 29" deep

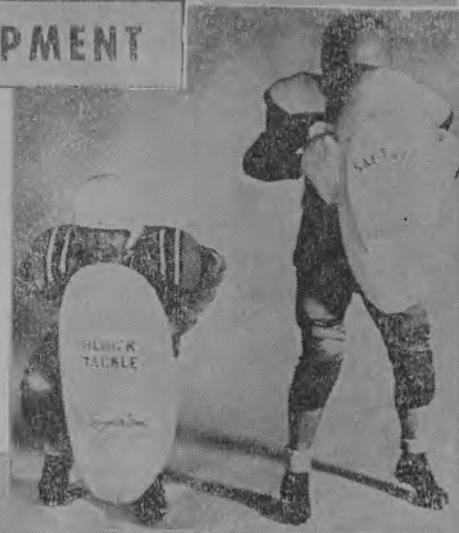
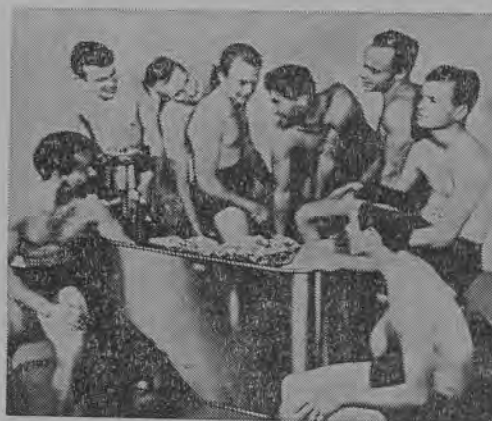
CHAMPION A3 (Galvanized) — \$325

41" lon x 21" wide x 29" deep

CASTERS (Easy Mobility) — \$49.50

Ball bearing (not for 'Giant')

LOGAN WHIRLPOOLS
Have These Outstanding Advantages
Circulates the same water at the rate of 3,000 gallons per hour.
Adjustable water ejector. • Heavy 20 gauge steel. • Complete with adjustable sling seat. Aerated water. • Superior design. • Non-corrosive materials. • Thermometer. Year guarantee on parts and workmanship. 1½" floor drain speeds emptying. Spring lifts Westinghouse motor. Motor and ejector beautifully chromed. Hot-dipped CHAMPION bath stands rugged use. Finished in gray hammertone enamel. Approved by an Official Electrical Testing Laboratory.



LOGAN DUMMIES

Reduce those crippling injuries by using Logan Dummies All Season. Largest and longest inflated dummies. Either Dummy can be held with both hands or with one hand and forearm.

Lightweight, fit body contours. Made of waterproof canvas, with convenient zipper.

Block'n Tackle Dummy \$14.95

Saf-T-Air Dummy — \$16.95

LOGAN KNEE STRENGTHENER

Guaranteed to Develop Strength (Pat. App. for)

A therapeutic exerciser, utilizing spring resistance, for the development of strength in the prevention or rehabilitation of knee disabilities. This university research designed device, provides resistance to the quadriceps muscle through a full range of motion. The resistance is varied by changing combinations of springs. Easy-to-follow exercises included. No heavy weights to pull joint apart. Padded for extra comfort. Easy to operate.

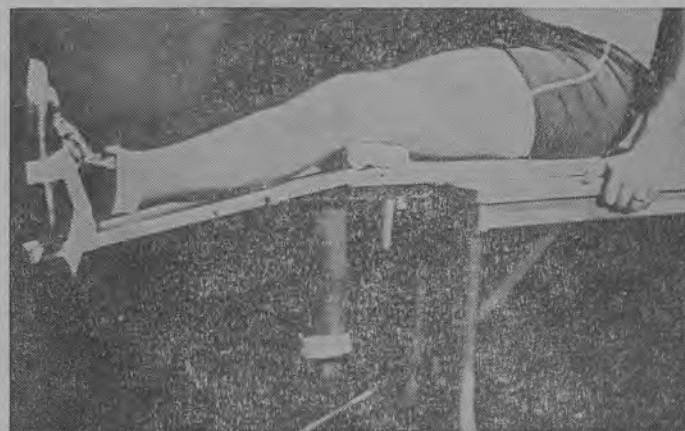
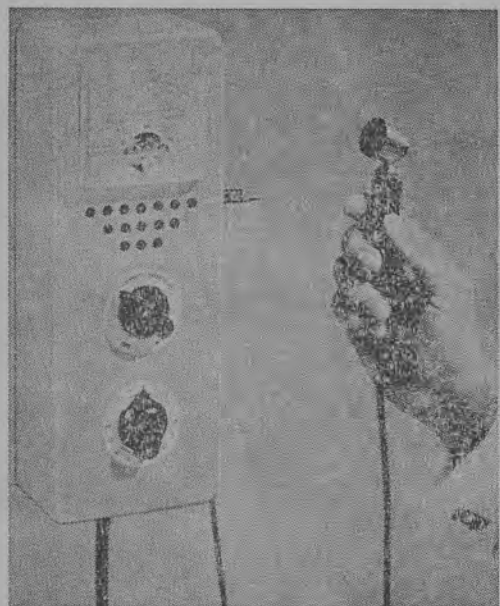
Shipping Weight 15 lbs. — Each — \$34.95

SONICATOR

(ULTRASONIC THERAPY)

Space saver — less than a foot in length. Portable — take it on trips, total weight 4 pounds. Ample reserve power and accurate output. FCC type approved. Guaranteed one year against defective parts and workmanship. One knob control — easy to use. Automatic treatment timer. 10 total watts of one megacycle ultrasonic output from a 5 square centimeter crystal. (Pencil-like). Handle with adjustable, waterproof, one inch diameter transducer ... which fits all body contours. Realistically priced:

\$199.50



Write for Free Catalog

Logan, Inc.

4966 Eagle Rock Boulevard
Los Angeles 41, California

ATHLETIC TRAINERS SUPPLIES AND THERAPEUTIC EQUIPMENT
Publishers of the Athletic Training



Now 2 New CRAMER HI-SCORE VITAMIN TABLETS

Hi-Score VM's 9 VITAMINS and 9 MINERALS

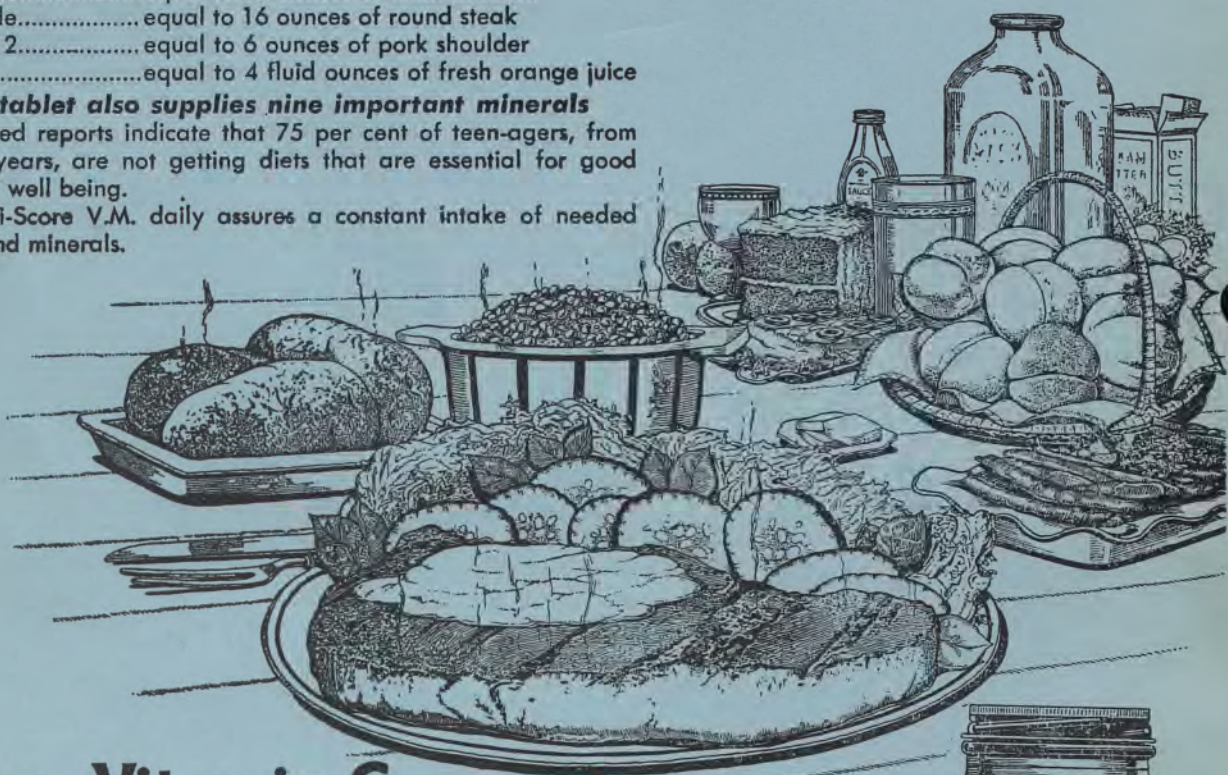
Each Cramer Hi-Score V.M. tablet contains:

Vitamin A.....equal to 6½ pints of whole milk
Vitamin D.....equal to 20 ounces of butter
Thiamin (B-1).....equal to 112 ounces of fresh green beans
Riboflavin (B-2).....equal to 35 ounces of dried beans
Pyridoxine (B-6).....equal to 3 baking-size potatoes
Ca. Pantothenate.....equal to 12 ounces of fresh broccoli
Niacinamide.....equal to 16 ounces of round steak
Vitamin B-12.....equal to 6 ounces of pork shoulder
Vitamin C.....equal to 4 fluid ounces of fresh orange juice

Each tablet also supplies nine important minerals

Published reports indicate that 75 per cent of teen-agers, from 12 to 19 years, are not getting diets that are essential for good health and well being.

One Hi-Score V.M. daily assures a constant intake of needed vitamins and minerals.



and HI-Score Vitamin C

With 100 mg. Ascorbic Acid per Tablet, equal to ½ pint of fresh orange juice.

A necessary supplement for most athletic diets.

Lemon-flavored tablets relieve dry mouth and thirst. May be eaten before or during practice or game.

Available at your favorite sporting goods store



CRAMERS of GARDNER, KANSAS