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FEBRUARY 1962

OF THE

## NATIONAL ATHLETIC TRAINERS ASSOCIATION

13th ANNUAL MEETING

ALBUQUERQUE, NEW MEXICO, JUNE 11, 12, 13, 1962

# THE JOURNAL OF THE NATIONAL ATHLETIC TRAINERS ASSOCIATION

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## PLANS ANNOUNCED FOR ALBUQUERQUE MEETING

The tentative schedule of events for the 13th Annual N.A.T.A. meeting which is to be held in Albuquerque, New Mexico, on June 10, 11, 12, 13, 1962, has been announced by L. F. Diehm, program chairman. This convention will be held in the new Schine Western Skies Hotel, rated as one of the finest and largest resort and convention centers in the southwest. Tentative program is as follows:

**Sunday, June 10, 1962**

1:00 P.M. Meeting N.A.T.A. Board of Directors
4:00 P.M. Registration in the lobby
6:00 P.M. Smorgasbord on the Patio
8:00 P.M. Indian Dance on the Patio

**Monday, June 11, 1962**

7:30 A.M. Registration in the lobby
8:00 A.M. Invocation by Father Jerome Healy, The Abbey, School for Boys, Canon City, Colo.
Welcome by Weaver Jordan, Chairman N.A.T.A. Board of Directors
Welcome by University of New Mexico officials
8:25 A.M. Talk by Dr. Hartshorn, Colorado State University, Fort Collins, Colo.
9:10 A.M. Panel on General Training Tecniques, panel to be announced
10:20 A.M. "The Effect of Changing Altitudes on Athletic Performance" by Dr. Longfield, U.S.V.A. Hospital, Albuquerque
11:05 A.M. "The Physiological Effects of Ergogenic Aids" by Dr. William Hental, Chief Pathologist, U.S.V.A. Hospital, Albuquerque
11:30 A.M. Question and answer period
12:05 P.M. Introduction of Exhibitors by Warren Arial, Indiana University
1:15 P.M. District and Committee meetings, (to be announced)
2:00 P.M. "A New Horizon in Athletic Training" by Mel Blickenstaff, Columbus, Indiana High School
2:30 P.M. Talk by Dr. Hayworth. U.S.A.F. Academy, Colorado Springs, Colo.
3:45 P.M. "Problems Encountered in Wrestling" by Dr. Stanley Hensen, Colorado State University, Fort Collins, Colo.
4:30 P.M. Question and answer period

**Tuesday, June 12, 1962**

8:45 A.M. Talk by Dr. Cotton, U.S.A.F. Academy, Colorado Springs, Colo.
9:30 A.M. Panel "Face and Head Injuries, Prevention Management" (members to be announced)
10:45 A.M. "Injuries to the Wrist and Elbow" by Dr. John Boyd, Orthopedic Surgeon, Albuquerque, N. M.
11:30 A.M. "Relationship of the Athletic Trainer and Game Official" by Dr. Paul Brechler, Commissioner of the Mountain States Athletic Conference
1:45 P.M. Talk by Dr. Herman Bearzy, Miami Valley Hospital, Dayton, Ohio
2:30 P.M. Talk by a Trainer (to be announced)
3:00 P.M. "Legal Liabilities in Athletic Training" by Dr. Robert Brashear, M.D., Knoxville, Tenn.
4:15 P.M. N.A.T.A. Annual Business Meeting

**Wednesday, June 13, 1962**

9:00 A.M. Panel on "Track Conditioning and Injuries" (members to be announced)
9:45 A.M. "Injuries Involving the Nervous System" by Dr. Robert Klebanoff, Neurological Surgeon, Albuquerque
10:45 A.M. Talk by Dr. Jay Bender, Southern Illinois University, Carbondale, Illinois
11:30 A.M. Drawing of Door Prizes
12 Noon The 13th Annual Meeting will adjourn

In addition to all of the above activities there will be special entertainment for the ladies and children who attend this meeting. On Sunday, June 10 there will be a Smorgasbord and an Indian Dance that will delight all. On Monday, June 11th there will be a luncheon at the famous Old Town Plaza, a sight you will always remember. On Tuesday, June 12 there will be a special brunch and a trip to one of the Indian Pueblo where you will see many interesting sights.

When you register for the convention, the wives will be given gift packets and everyone will receive information about New Mexico and the places to see, through the courtesy of the Chamber of Commerce. During your stay at the Western Skies Hotel you will have an opportunity for swimming, shuffleboard, ping pong, all without extra charge. You can also use the University Golf Course on the Campus without any cost. The N.A.T.A. will even stand the expense of the baby sitters if you bring your children and have need for this service. Also, the Coca Cola Company will provide free cokes during this convention, and there will be horses available if you feel like doing a little horseback riding. Nothing is being left undone to provide you with the best of service, enjoyment, and good programs, when you attend this 13th Annual N.A.T.A. Meeting.

The Schine Western Skies Hotel is a resort type Hotel located in the foothills of the Sandia Mountains. Situated at the eastern-most limits of the city of Albuquerque on Highway 66. There are 250 rooms all equipped with air-conditioning, television, radio, and private combination tub and shower. Rates for single range from $8.50 up; double—$10.50 up; Twin—$12.50 up; Suites—$29.00 up.

You will enjoy your stay in Albuquerque—it is considered as an informal city. By all means, bring your tie, but sport shirts and jackets are accepted anywhere during the day.

Albuquerque will be expecting you in June—please plan to be there.

The Sun Deck overlooks Cabana Rooms, and a 60-foot heated pool promises fun for the entire family. Jutting mountain peaks form the background.

# ATHLETIC DERMATOLOGY

Presented at the Third National Conference on the Medical Aspects of Sports, November 26, 1961, Denver, Colorado,

by L. W. STAUFFER, M.D.
Eugene, Oregon

In general as we look at an athlete who is pronounced ready for competition, we are concerned with muscle strength, coordination, joints, bones, attitudes and equipment. In this paper we will consider the wrapping over muscles and its relationship to adequate function of the athlete in a competitive situation. Obviously these individuals are subject to all of the skin diseases common to their age group. We will, however, be concerned only with those disorders appearing with a degree of frequency significant enough to be of major importance.

## VIRUS DISEASES

Diseases of the skin of virus etiology that frequently occur are the verruca vulgaris and plantaris family, molluscum contagiosum and herpes simplex.

Warts occur on any cutaneous surface, less commonly on mucous membrane. These are innocuous tumors of the skin, contagious only to the extent a susceptible individual is exposed to the virus. A given individual varies from time to time in susceptibility. This virus is widely present. Many warts spontaneously disappear, particularly in youngsters. Planter warts are not etiologically different; they simply choose to exist on the plantar surface of the foot. They are painful eventually.

In the management of warts, the verruca vulgaris generally should be removed by electro-dessication or fulguration under local anesthetic during the off season. Partial immobilization is recommended during the first week or ten days of healing if this procedure involves the skin over a joint. Warts should not be surgically excised. Plantar and peri-unguinal warts are perhaps most effectively treated with liquid oxygen or nitrogen. Verruca accuminata (venereal warts) respond quite well to oleoresin of podophylline 5-10% in a petrolatum base. This preparation should be thoroughly removed by repeated washings with soap and water after being in contact with the infected tissue for approximately one hour.

Molluscum contagiosum is a disorder quite similar to a wart; however, it is more highly contagious. These lesions are dome shaped, waxy, skin colored, umbilicated, varying in size from .2 to 1.5 cm., averaging .3 to .5 cm. This disease can rapidly spread through a wrestling or basketball squad.

Treatment:

1. Linear incision across the top.
2. Express molluscum body with loop curette or comedone extractor.
3. Pressure control of bleeding.
4. Paint with .5% phenolis, 1 minute.
5. Wipe with alcohol.
6. Paint with tincture of iodine.
7. Band-aid for 12 hours.
8. Re-examine frequently for new or missed lesions.

Herpes simplex is a disorder frequently occurring around the mouth, although it may occur on the genital areas and less often elsewhere on the body. This eruption is preceded for eight to twelve hours by a tingling sensation followed by vesiculation, crusting, fissuring of the involved areas and finally healing. This infection frequently becomes a recurring problem. It is sometimes possible to cut down on the frequency of this eruption by avoiding, as much as possible, trauma to the area involved, including such things as shaving, sunburn and windburn. In some instances the use of repeated smallpox vaccination has been successful. This procedure is most effective if one elicits an immune response at weekly intervals for a period of six weeks. It is important to wait for six full weeks after healing if a non-immune or "take" response is elicited on the first vaccine. Recurring non-immune reactions indicate this modality is non-effective in that patient.

## FUNGUS DISEASES OF THE SKIN

Tinea pedis or "athlete's foot" is the most talked about infection in this group. This is a fungus infection of the feet, particularly the interdigital spaces of the toe and occurs in those people who are susceptible to the infection. It is commonly accepted that exposure to the spores of this infection is frequent and almost universal. Misdiagnosis of "athlete's foot" is a very common error. Generally speaking, if there is no peeling or cracking of the web of the little toe, the eruption is not "athlete's foot" until proven so by scrapings or by culture. Allergic reactions, bacterial infections and sweat gland abnormalities of the foot may resemble or may be mistaken for true tinea pedis. Small, deep, grouped vesicles of the instep frequently are dermatophytids. Bullous lesions of the plantar surface and/or toes may indicate a severe hypersensitivity to fungus growth. Local therapy with fungicides can trigger a severe exacerbation in any of the preceding situations.

Treatment with:

Pragmatar ointment, Desenex or Sopranol powder, Enzactin ointment, powder or aerosol spray are usually effective. Avoid "greasy foot" if ointments are used. If secondary infection is present, control it first. (Vioform or Furacin cream suggested). Dermatophytids or bullous dermatophytosis are indications for the use of oral griseofulvin with a combination of a corticosteroid and antibiotic locally. Griseofulvin is is not totally effective for tinea pedis and must be accompanied by local fungicidal therapy when the acute dermatitis subsides.

Do not use iodine on the foot.

Tinea corporis, though not frequently found, is still an occasional problem in athletes. This infection can form an irregular patch and not a ring in some instances. As a general rule, there is greater interaction between tissues and infection at the periphery, so with central quiescence, a ring shaped eruption is produced. Questionable cases should be given further study by culture and microscopic examination of scales from the lesions. (Micro: Place scales—not crusts—on a slide, cover, allow a drop or two of 25% KOH to run under the cover. After 15 to 30 minutes—clearing—examine for mycelia, using subdued light.) Pityriasis rosea, annular psoriasis, annular impetigo and nummular eczema will fool you at times. Black light is not a help in the diagnosis of tinea corporis.

Treatment for tinea corporis is roughly the same as that for tinea pedis. Vioform cream is suggested in questionable cases until the diagnosis is established. Griseofulvin in adequate dosage is effective, but should be accompanied by local therapy.

Tinea versicolor is a superficial fungus infection, usually involving the upper body, seen more commonly (and more highly contagious) in warmer climates. This is the only fungus infection not involving hair in which black light can be a diagnostic aid. These lesions fluoresce a blue-green color. On inspection this eruption is macular, brown to fawn colored, finely scaling, with a sharply de-

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## ATHLETIC DERMATOLOGY (Continued)

fined, but irregular border. When the skin is tanned, the lesions appear white. Microscopic examination of the scales reveals diagnostic appearance of Microsporum furfu—clusters of round spores with short, angulated mycelia.

Five per cent Dermasulf solution painted over the involved areas twice daily over a period of six to eight weeks is generally effective treatment for this disorder. Members of the family, close contacts and the patient should be inspected after three or four weeks, using black light to augment clinical inspection, to assure that all infected areas and infected contacts are adequately being treated. Akrinol (Schering) is a new preparation that is said to be highly effective as treatment in this disorder. Griseofulvin does not work against the Microsporum furfur.

Tinea cruris is another relatively common problem in the locker room. The genitals, for all practical purposes, do not develop this infection. If there is eruption of the scrotum and/or penis, intertrigo or contact dermatitis should be suspected. A typical lesion of tinea cruris is a fan shaped lesion with the base of the fan at the fold of the groin, the edge spreading over the inner thighs. Central clearing is usually evident. Itching, burning and occasionally pain are present. Coexisting tinea pedis is almost always found and should be treated.

Treatment of tinea cruris can be accomplished with the same medications as listed under tinea pedis. Excess ointment in the groin is to be avoided. Do not use a preparation that burns for more than a few minutes after application. It is suggested that cotton boxer shorts be worn by the patient and that these be boiled between wearings. Treatment should be continued for at least two weeks after eruption has healed. Griseofulvin is usually effective in this condition. It is wise to remember that fat or oil probably should be present in the intestinal tract in order for this drug to be absorbed.

Prevention of fungus infections in the locker room can be aided if:

1. Shower cloggs are worn.
2. Cover dressing bench or chair with towel before sitting down.
3. Dust feet frequently with fungicidal powder or aerosol spray.
4. Do not interchange unboiled supporters.
5. Make periodic trips to the shower room for skin inspection.
6. Foot baths are worthless.

To be continued in our next issue

## FOOTBALL MOUTH PROTECTORS

by DONALD G. MOON, D.D.S.
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*Reprinted from*
THE JOURNAL OF THE INDIANAPOLIS DISTRICT DENTAL SOCIETY
Vol. 15: 10-13, February, 1961

At the national A.D.A. meeting last fall the delegates took action to reduce dental injuries from body-contact sports by urging all agencies concerned with interscholastic athletics to make mandatory the wearing of properly fitted, individually fabricated mouth protectors by members of school football teams and those engaged in other body-contact sports during practice sessions and games. They urged appropriate agencies of the Association of this recommendation in every way possible.

*The National Football Rules Committee voted, on January 4, 1961, to require high school, junior college and small college football players to wear a mouth protector, starting in 1962. This rule covers players in 20,000 high schools, 300 junior colleges and 450 small colleges. The rules committee, composed of state delegates from the National Federation of State High School Athletic Associations, the National Junior College Athletic Association and the National Association of Intercollegiate Athletics (NAIA), adopted the safety measure to apply except in the case of boys who submit written statements from dentists stating they are unable to wear such a mouthpiece.*

*The mandatory use of a mouthpiece was adopted on a 27-20 roll call vote by the rules committee even though questionnaires sent to coaches and game officials prior to the meeting indicated a 3 to 1 opposition to such a rule. In view of the opposition expressed by some officials and coaches, it behooves us to prepare ourselves to accept this challenge and provide the players with the most acceptable form of protection possible.*

The justification of such a rule becomes evident when one studies the injuries sustained by football players and notes the protection provided by a mouth protector. The injuries encountered in football have been listed as follows:[4]

| | |
|---|---|
| Head, neck or spine | 9% |
| Face and dental | 21% |
| Shoulder or collar bone | 13% |
| Arm, hand or wrist | 14% |
| Knee | 11% |
| Leg or foot | 22% |
| Hip or thigh | 5% |
| Internal or others | 5% |

As can be seen from the above, only injuries to the legs or feet approximate in incidence those involving the face and teeth. In 1950, a survey of 62 colleges revealed that among 4,000 players participating in football that year, 733 teeth either were chipped or displaced by trauma. Calculated conservatively at one tooth injury per person, this would mean that 18 per cent of the college football players suffered tooth casualties. That same year, the Louisiana State University football squad of 52 men experienced fracturing or loss of 65 teeth!

The Security Life and Accident Company found that injuries to high school football players might be expected to be higher than in college men. They found that 37 per cent of football injuries were incurred by the first-year player; 32.5 per cent by the second-year player; 22.3 per cent by the third-year player; and only 8.2 per cent by the most experienced fourth-year participants.[3]

After an examination of insurance claims† for 850 football injuries sustained by players in 90 Indiana high schools, it was found that 80 were for dental and/or associated structures (lips, cheeks, tongues and jaws). These involved 95 teeth, 13 lacerated lips needing sutures, 3 contusions to the temporomandibular joint, 2 lacerated tongues requiring sutures, and one fractured jaw. The total cost for treatment of these 80 cases was over $3,000. Thus the need for adequate protection of the oral region

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## FOOTBALL MOUTH (Continued)

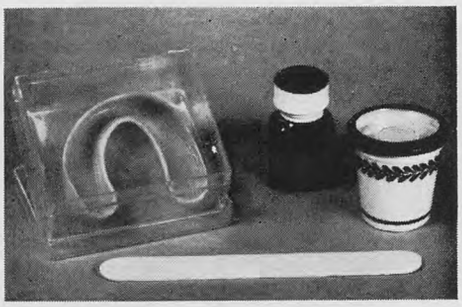
is demanding, both from an esthetic and functional point of view and from the monetary standpoint.

The amount of protection gained through the use of the face mask has greatly reduced the injuries to the face. However, the dental structures do not enjoy this same protection. This can be interpreted from the results of a study of 15,714 boys playing high school football, which showed that 57 per cent (8,993) wore face masks of five different types. The remaining 43 per cent (6,712) wore no guard. In an average high school season, approximately one per cent of all players suffer broken noses. The wearing of a face mask reduces this possibility about eight times. In this study, masks were less effective in preventing chipped or broken teeth. One hundred and twenty-one tooth injuries occurred in players wearing masks, as compared to 167 such injuries in boys without this protection.[1]

There were no dental injuries reported among 84 Philadelphia players "equipped with individually fitted mouth guards" as compared to 21 tooth and 26 head and face injuries sustained by 596 players with no mouthpieces or with the general ready made type.[2] Of 244 unprotected Nassau County, New York, players, 29, or 11.7 per cent, suffered some type of dental injury, whereas 151 protected players received no dental injuries.[5] An Indiana University study of Indianapolis and Marion County High Schools revealed that during a two year period 480 unprotected players received 44 dental injuries. No dental injuries were reported among the 240 protected players.

### Requirements

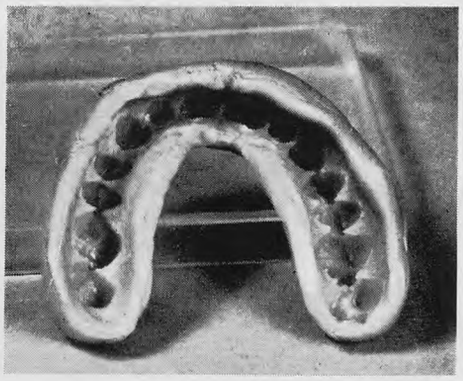
To be effective, a mouthpiece must fit the individual's mouth, must afford adequate protection, must stay in place comfortably and securely without impingement upon the soft tissues, and must allow efficient mouth breathing and speech. It is obvious, to meet these requirements, a mouthpiece must be individually fitted. Usually a protector is worn only over the upper teeth. There are several types of individually fitted mouth protectors which will partially fulfill these requirements. These may be divided into two groups; commercially available products and custom-made guards processed on models of the player's mouth.



### Some Commercial Products:

Type A‡—This is a white, horseshoe-shaped mouthpiece consisting of an outer rubber shell with a thermoplastic inner material that is softened by boiling for fitting in the mouth. This mouthpiece lacks elasticity and is extremely bulky. Extensive trimming with emery bands on a dental lathe is necessary to render this mouthpiece wearable. Fitting and trimming time is approximately 45 minutes.

Type B—This mouthpiece consists of a prefabricated soft silicone outer tray, which is filled with a silicone material mixed by the dentist as though he were making an impression. The tray, filled with the filler, is inserted and allowed to set in the mouth. The tray, with the filler now bonded to it, is removed and trimmed. This protector has more elasticity, however, it is short over the facial surfaces of the teeth, which reduces retention. It is thick on the lingual surfaces of the incisors, which interferes with speech. The occlusal surface is thick, impinging upon the "freeway space" adding discomfort and increasing the tendency of the wearer to chew on it. Durability is lacking. Fitting and trimming time is 30 minutes.



Type C—This mouth protector has a soft plastic outer tray. The inner material is formed by mixing the monomer and polymer of the soft self-curing plastic which is furnished. This product is available in three sizes; small, medium and large. It has been our experience that the small size is best suited for all but a few mouths. This mouthpiece, when properly fitted and trimmed, comes nearer meeting the requirements for a mouthpiece than the two previously described. If a good fit is not obtained at first, improvement may be gained by adding additional soft, self-cure acrylic much in the same manner as relining a denture. Proper trimming is essential. Fitting and trimming time is 20 minutes. Excellent durability.

Type $C_1$—This is similar in construction, material, and fitting procedures to type C. However, it is available in only one considerably smaller size. This mouthpiece was found to be the most comfortable of the commercial products and afforded adequate protection. It is much more durable than the latex custom-made protectors and, in general, may be the mouthpiece of choice. Fitting and trimming time is approximately 15 minutes.

### Custom-Made Protectors

These are fabricated of one of several materials over a model of the player's mouth made from a dentist's impression. This type of mouthpiece provides the best fit and the correct bulk and thickness of material. Two methods of fabrication have met with success. One consists of spreading about four layers of liquid latex§ on a model of the mouth. About 45 minutes drying time is required between each layer. The addition of rayon flock to the latex results in a tougher material and reduces curing shrinkage.

The other method involves investing the model in plaster after the model is first covered with two thicknesses of base plate wax. Heavy sprues are attached to each tuberosity. Following boil-out, the liquid latex is poured into one of the sprue holes until the mold is filled. As the rubber sets, additions must be made due to shrinkage. The rubber mouthpiece may be recovered in about 24 hours.

The fit, shape, bulk, thickness, and retention is equal to or better than any other type. However, the durability of

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## FOOTBALL MOUTH (Continued)

this type of mouth protector has not, in our experience, proved to be as lasting as types C and $C^1$. The laboratory procedure for this type of mouthpiece is involved. However, these mouthpieces have been fabricated by the mothers of high school players following demonstrations by local dentists.

At the present time, the type $C_1$ mouth protector may be the mouthpiece of choice. For hard to fit players and some quarterbacks with special speech demands, the custom-made latex mouthpiece may be required. Custom-made latex mouthpieces have been made for high school teams as a project of local dental societies. For this type of project, the latex mouthpiece has proved most economical since the labor was donated by the dentist or auxiliary personnel. The cost of material for the latex mouth protector is approximately twenty-five cents per unit.

### References

† Courtesy of Mr. Fisk Landers, insurance consultant for the Indiana High School Athletic Association, Indianapolis.

‡ Type A—"Featherbite," $6.00. Type B—"Siligard," $3.50. Type C—"Plast-O-Guard," $6.00. Type $C_1$—"Shur-Fit," $3.00.

§ The liquid latex may be obtained from the Plastic Arts Studio, 3403 S. Madison Street, Muncie, Indiana, and the Williams Dental Gold Company. Rayon flock may be purchased from the Plastic Arts Studio.

1. Cathcart, J. G.: Mouth Protection for Contact Sports, D. Digest 64:338, Aug. 1958.
2. Cohen, A and Borish, A. L.: Mouth Protector Project in Philadelphia High Schools, J.A.D.A., 56:863, June 1958.
3. Dukes, H. H.: Football Mouthpieces Reduce Tooth Injuries to Zero, Kan. St. Dent. J., 39:65, May 1955.
4. Handbook of the National Federation of State High School Athletic Associations, Chicago, 1958-59, p. 35.
5. Schoen, G. H.: Report of Committee on Mouth Protector Project. Bul. Nassau Co. D. Soc., 30:12-14, Jan. 1956.
6. Vanet, R.: Gridiron Challenge, D. Survey. 27:1258-60, 1961.

## EXHIBITORS AT MADISON

Due to the lack of space in the last issue of the National Athletic Trainers Journal, the list of exhibitors at our Madison, Wisconsin meeting was not published. The companies exhibiting were as follows:

Conco Surgical Products, Inc., Bridgeport, Conn.; Featherlax Corporation, Houston, Texas; Champion Knitwear Company, Inc., Rochester, N. Y.; Duke Laboratories, Inc., South Norwall, Conn.; Chattanooga Pharmacal Co., Inc., Chattanooga, Tenn.; The MacGregor Company, Cincinnati, Ohio; Johnson & Johnson, New Brunswick, N. J.; Cramer Chemical Company, Gardner, Kansas.

Also exhibiting their products were: The Coca-Cola Co., Atlanta, Ga.; Ille Electric Corporation, Williamsport, Pa.; Protex-All Company, Ottawa, Illinois; School Health Supplies, Forest Park, Illinois; McMillan Sports, Inc., Terre Haute, Ind.; The Kendall Company, Chicago, Ill.; The Burdick Corp., Milton, Wisc.; The Seamless Rubber Co., New Haven, Conn.; Rawlings Sporting Goods Co., St. Louis, Mo.; Becton Dickinson and Co., Rutherford, N. J.

Adams Plastics, Cookeville, Tenn.; Enroc Laboratories Development Co., Greenville, Ohio; American Trampoline Co., Jefferson, Iowa; John T. Riddell, Inc., Chicago, Ill.; Elgin Exercise Appliance Company, Elgin, Ill.; Wilson Sporting Goods Co., River Grove, Ill.; Medco Products Co., Inc., Tulsa, Okla.; American Sporting Goods Mfg. Co., Inc.; Dyna Wave Corporation.

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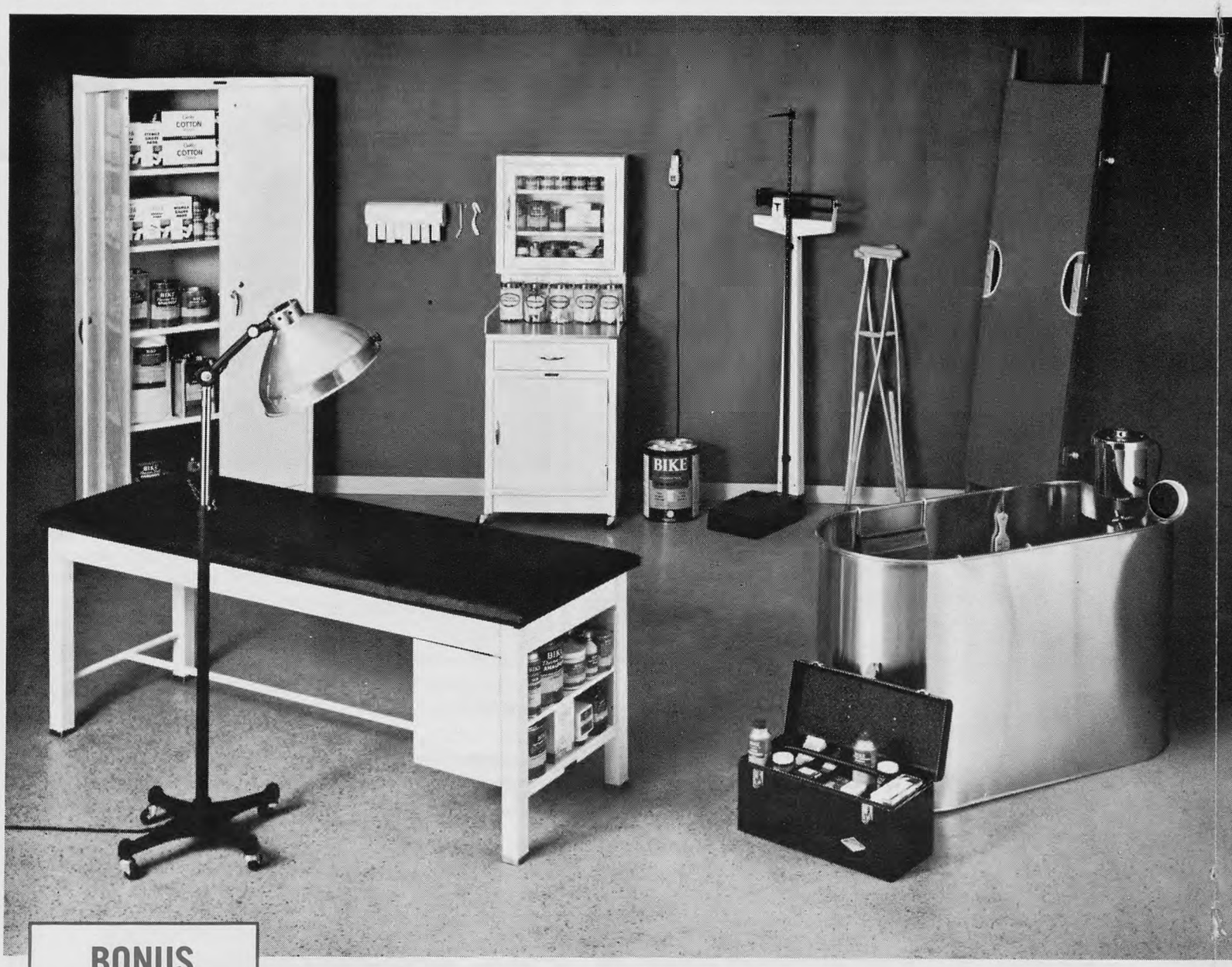


## BONUS AWARD
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**"SAMPLE" TRUE OR FALSE QUIZ FOR CONTEST ENTRANTS!** The official entry blank and rules contains 5 "True or False" questions! So, warm up on these before you write your entry! 1) The BIKE Giant School Pack Tape contains 56 rolls per can, each 15-yd. roll tapes two ankles? (X) True. ( ) False. 2) BIKE's new fast-healing Thermo-Pack Analgesic Balm is effective for over 12 hours? (X) True. ( ) False. 3) BIKE's germicidal-fungicidal Formula 87 Skin Toughner is the only one that comes in a 16-oz. aerosol can? (X) True. ( ) False. 4) BIKE Anti-Fungal Spray gives quick, positive control of serious Athlete's Foot, supporter rash, other ringworm infections? (X) True. ( ) False. 5) Tensor bandages are the only ones that have clips attached. (X) True. ( ) False. 6) BIKE Foam Liniment is the non-greasy rub-down lubricant with aerosol convenience? (X) True. ( ) False.

*Ask your dealer about the most complete line of products for the training room!*
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# training room for your school by entering prevent athletic injuries"

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## VITAMINS—YES OR NO?

by BOB GRANT
Boston University, Boston, Mass.

The indiscriminate use of vitamin supplements to the athlete's diet appears to have negative value and may be harmful! Self-administration, like reaching into the candy bowl, can cost more than it is worth.

The athletic trainer or high school coach may well be unnecessarily increasing his budget and supplying a "crutch" that could have adverse mental efforts for a liftetime. *Education* involving vitamins—that is, that they are basically catalysts and that both vitamins and minerals are well supplied in an *adequate* nutritionally balanced diet—is essential to all persons handling athletes.

Evidence that vitamin supplements can prevent colds is lacking. There is no substitute for diet and training, and taking vitamins to prevent problems is ridiculous. There may be a need in the early weeks of training, but this should be established by the team physician. If such a need is formed, it *may* be for B complex and C only. Multiple vitamins at this time are unnecessary.

Vitamins do not increase health or happiness. If your athlete develops a health problem, consult your doctor. Vitamin deficiencies can exist, yes; but must be treated by a physician. One study even showed that normal subjects eating an adequate diet and getting vitamin supplements excreted large amounts of vitamins in the urine.

Athletes can be very suggestible and will listen to your counsel. Why not point out that sleep, an adequate nutritionally balanced diet, work, and learning self-discipline do not come in a capsule or a pill? Educate your boys in *what* to eat and *when* to eat and *how much* to eat and abolish the use of the expensive tablet, capsule or pill. If vitamins are given athletes in any area of sports, such administration should be only under the prescription of a physician.

The manufacturer wants to make money and this is his right. But, he does not promise that vitamin supplements take the place of poor diet habits and will make up for nutritious food *not* consumed. Also, the vitamin advertisements do not show the public *how much* or *what* to eat in the way of natural food, but do present the fallacious argument that large numbers of people need to take vitamin supplements in order to be adequately nourished.

## TAKE ME AGAIN TO OLD TOWN

Take me again to Old Town
To view the plaza green;
And again to see the conquistadores
March in a daytime dream.

Take me again to Old Town
Through the curio shops so rare,
And I can dine delightfully
Amidst a Spanish air.

Take me again to Old Town
To view its church so old,
Where I can hear the angels
Playing their harps of gold.

Yes, take me again to Old Town
Where the patios so enhance
This square of Albuquerque
And the Indians often dance.

— Victor E. Brown
Rochester, N. Y.

## THE RENAISSANCE OF PHYSICAL FITNESS

by S. E. BILIK, M.D., FABPM & R.
133 Valley Road, New Rochelle, N. Y.

I quote from an article I wrote in 1944, "What the Health" . . ." . . . a squad of German prisoners marching past our hospital. Short and tall, they are rugged, muscular, radiating strength, vigor, confidence . . . represent a physical ideal toward which we, as conditioners of man power, strive, namely the attainment of profound health and vigor . . . Repeatedly the writers expressed amazement at the physical power, ruggedness and courage of our recent foe . . . With the rise of frenzied nationalism, this plan of cultivating physical supermen, became an absolute religious dogma . . . "Physical education is not a matter which concerns the individual . . . it is an essential requirement for the self-sustenance of the nation . . ."

". . . During the intermissions between wars, the democracies, including ourselves, wallowed in dreams of peace on earth and good will to all men, pursuit of happiness through self indulgence, freedom from all possible sweat and toil . . . When the deluge came, devitalized France toppled like a broken reed. Of Britain, Shirer wrote:—"What impressed me most was their physique. They were hollow chested and skinny and round shouldered, typical of the youth England so criminally neglected . . ." As for America, the outbreak of the war (World War II), found our potential combat man power in deplorable physical condition . . . "As Sect. of War, I have come into the possession of facts about the health of our youth, so grim, so startling, that our people should receive them with the consternation they would display upon reading of a military disaster . . ." Col. L. G. Rountree indicts:—". . . the indifference and the apathy (to physical fitness) on the part of the government, states, municipalities, parents, teachers, churches, physicians . . . the failure is a combined one . . . youth is the victim . . ."

. . . "Under stress of war needs, Granitville, S. C. schools promoted an intensive program of physical training for every child medically fit to participate. Twenty-nine thousand colleges and high schools in every city and hamlet were carrying on equally intensive programs . . . Physical educators emphasized:—"Muscular endurance, agility and coordination are essential for fighting men . . . Health and fitness are a vital necessity for war." . . . And by "health" they meant strength and vigor and not mere freedom from disease.

*Under what circumstances are health and fitness any less of a vital necessity?* Herein lies the crux of the present (mind this was written in 1944) national hullabaloo about *Physical Fitness.* If we assume that a strong, muscular body, endurance, agility, health and overall fitness are desirable only in time of war, then all our admitted apathy is justifiable . . . The very opposite is true, every intelligent human being appreciates that health and fitness are invaluable adjuncts to enjoyment of life. We want our children to be robust and vigorous and active . . ."

1962 nearing . . . Life is aeons of years old; Genus Homo Sapiens a few million: "civilization" a few thousand; modern science no more than a hundred or so . . . Within one man's lifetime (mine, for one) our mode of living has passed from "in the sweat of your brow" to mechanization, automation, "push button era," leading to revolu-

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## THE RENAISSANCE OF (Continued)

tionary changes, definitely advantageous overall, but also conducive to rapid deterioration of the bodily physique and vitality . . . "The cultivation of the mind alone is destructive of the body" has come true with a vengeance.

Is all the present hullabaloo about our *Physical Unfitness* just so much hogwash? "The cited comparisons are shocking . . . They provoke serious thought and stimulate organized action before it is too late . . . They reveal that the rapidly changing mode of American life is leaving its imprint on the basic physical fitness of our youth . . ." Those who take time to investigate, are profoundly SHOCKED . . . During his presidency, Gen. Eisenhower repeatedly expressed is concern with the revelations of our physical deterioration . . . Somehow he found time to launch the Council of Youth Fitness to combat this vicious trend. Overwhelmed with numerous acute problems of steering America through a communist infested world, Eisenhower could not possibly give more support to this incipient effort to promote a *Renaissance of Fitness* . . . All of Shane McCarty's sincere and dedicated work failed to dent the prevailing national apathy and the movement was fast getting nowhere when President Kennedy revitalized the drive with intensity and perserverance . . . He wrote, he spoke, he assigned Abe Ribicoff and Don Wilkinson to the exacting task . . . It is evident that John Kennedy means to prompt and prod all concerned until the movement takes fire . . . To those of us who have a thorough appreciation of the seriousness of the problem, there is hope that all these efforts will achieve the objective of reversing the trend from deterioration to restoration and retention of true *Physical Fitness.*

Firstly, is it true that *We are physically unfit?* Many intelligent and sincere individuals argue that our admitted athletic prowess and prominence contradict the claim that our youth is unfit . . ." The physical fitness of a nation definitely is not displayed in the showing of its Olympic teams . . ." Furthermore our nation of 180,000,000 would have made a relatively poor showing in the 1960 Rome Olympics, except for the winning points piled up by our Negro athletes . . . There are 165,000,000 whites and 16,000,000 Negroes in the U. S. . . .

The oft heard contention:—"Look at the vast proportion of our youth who fail to qualify for military service" is admittedly challengeable, since the very rigid and exacting qualification standards encompass many other factors besides that of physical fitness. Many star athletes are turned down for military service for relatively minor disabilities, only to return to participation in most strenuous competitive sports.

. . . The lay and professional literature teems with reports of comparative tests showing that our children are in poorer physical condition than those of Italy, Germany, England, Japan, Russia, China . . . Many physical educators and physicians challenge the reliability of these tests and the conclusions based on the latter. Little is to be gained by debating the relative value of these tests. "Are our children physically unfit?" can be answered vividly by this simple procedure:—

Put a few score athletic youngsters and an equal number of non-athletic in shorts. Parade the two groups before an audience of parents, teachers, government officials. Vividly the difference in the physical condition of the active and the relatively inactive child will be driven home. Can you think of any logical reason why this shocking difference should be permitted to continue? The trained youngster rugged, muscular, vigorous, dynamic,

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## THE RENAISSANCE OF (Continued)

exuberantly healthy and vital, while your own youngster looks like a bedraggled misfit. The slightest sneeze and sniffle is hastily rushed to a "specialist" to protect the adored child against outright disease. Little, if anything, is done to assure the growing child of a stanch, active, vital body. Frequently efforts of our educators to introduce an intensified program of fitness for all children, are looked upon as a nuisance and combatted by parents who thus far do not appear to give a hoot as to what physical condition their children are in . . . as long as they do not sneeze or sniffle.

*Physical fitness* must first be "sold" to the parents and particularly ot the mothers. The fathers will readily agree that there is a real need of intensifying promotion of universal physical fitness but will do exactly nothing about it . . . "too busy" . . . The mothers, thus far, appear to be concentrating on staying fit and streamlined themselves with little thought for their growing children. What we need is evangelists of fitness and health to induce the mothers to clamor for intensified programs of physical development of their children . . . The *physical educator* is the logical evangelist to spread this gospel of fitness. He must seek every opportunity to address groups of parents at churches, clubs, PTA meetings, impassionately and convincingly preaching vigorous health . . . Every Physical Educator must aim to become a Bernarr MacFadden, who though a favorite butt of ridicule of our press, nevertheless was the man who did more than anyone else in the world, to induce millions of people to accept physical fitness as an indispensable facet of healthful daily living.

Interest in physical fitness and the love of a stanch, good looking body, can be aroused by sincere and enthusiastic promotion. If compulsion is necessary to achieve the objective, then compulsion it must be. Youth is immature, lacks judgment, foresight, experience, insight; it must be guided with a firm and experienced hand in the paths that are best for it, in the present instance to the desired standards of physical fitness.

After 50 years of intensive activity in physical education and medicine, I do not see how any logical individual can possibly challenge the truth that humanity is deteriorating physically . . . The next question is *"Shall we do anything about it?"* Evolution has ruled the progress of the world . . . Evolution appears to be changing Genus Homo Sapiens from a variety of muscular ape into a skeleton draped with bacon, housing ever increasing masses of fallout resistant brain tissue that is certain to carry humanity to ever greater heights of intellectual and scientific achievement . . . "Muscle, what for?" is a frequently heard challenge by those who have none, never had any, and wouldn't know what to do with it if they did have it, brilliant members of our genus who have never exercised more than their tongues or vocal cords.

. . . There are some who object to "muscle and sweat;" object to muscle because they are allergic to sweat. The "don't raise a finger after forty" advocates, probably did not have enough vitality to raise that finger before forty. Activities that produce a good musculature, coincidentally strengthen all the vital organs, improving the functioning of the heart, the lungs, the liver, the digestion, the posture, the mind, keenness of mental reaction comes with vigorous physical fitnesss. A well trained body gives the individual confidence, courage, a bright cheery outlook on life. Debilitated youngsters or adults have no stomach for a fight, however necessary and unavoidable, a weakling cringes and runs.

*Is physical fitness desirable?* Each must answer this for himself. Certain it is that a great many of us are profound believers in the survival of a strong, vital, vigorous, rugged body. Let us dedicate ourselves to becoming crusaders in the struggle to achieve a *Physican Renaissance*. The present drive may well achieve the desired goal.

The primary objective of intensive athletic training is "to put the body with extreme and exceptional care under the influence of all the agents which promote its health and strength, in order to enable it to meet extreme and exceptional demands upon it . . . Training aims to condition the muscles, the heart, the lungs, the joints, the nervous system, the mind, the whole body, every tissue and every cell, to function at maximum possible efficiency and to stand up under the most gruelling stress and strain . . ." Trainers and physicians specializing in the care of athletes will assure you that youth willingly or condescendingly, adhering to a program of rigorous training, does achieve super condition and stays thus as long as it abides by these so-called "Spartan" regimens of living.

Proverbially "what is good for the goose should be good for the gander;" if a planned program of training can assure super health, vigor, vitality, endurance, resistance to disease, ability to take stress and strain in stride, confidence, courage and enjoyment of life, then *why limit it to our athletic youth?* Why not apply it to every Tom, Dick and Mary? Admittedly vigorous health is an objective well worthy the essential application of time and effort.

Let us now assume that all of us are profoundly convinced that the proposed drive for a *Renaissance of Physical Fitness* is our objective. Logically, our next problem is to decide on the modus operandi.

Through the passing decades many leaders in physical education have emphasized the acquirement of skills and participation in competitive sports, condemning "artificial" calisthenics as boring; everyone was to be taught some "carry over" sport. In planning an effective approach to universal fitness, it is essential to accept as axiomatic that no more than 20% of our children (or adults) possess the essential neuro-muscular coordinations needed to develop sufficient athletic skills to participate in competitive sports. No efforts, however knowing and conscientious, can possibly make an athlete out of a non-athletic youth. Please do not cite isolated exceptions; they are readily granted. If you believe this sweeping statement is erroneous, try disproving it.

Our competitive sports are invaluable in the development of our athletically endowed youngsters who may well be accepted as our Imperial Guard, our gladiators ever in the forefront of our defense against those who would harm or destroy us. However, it is utter folly to attempt to force games of specialized skills on those who simply "ain't got what it takes" . . . A child or an adult is not very apt to participate in activities he is not very good at . . . Forced to play, he will clown, make half-hearted efforts or manage to duck out of his turn, refusing to fumble clumsily or to strike out ignominiously . . . And he is right. There is no sound reason why he should be forced to eat spinach if he "hates" spinach. By all means use the fascinating and appetizing competitive sports for those physically and physiologically qualified but do not try to jam them down the throats of the naturally clumsy youngsters. Ridicule or disparagement of inherent clumsiness is infantile. We must start with the acceptance of these "facts of life." Idealistically we may condemn "arti-

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## THE RENAISSANCE OF (Continued)

ficial" forms of exercise but from a practical standpoint, we must utilize them to achieve our primary objective. We are living in a world of artificialities.

Once we accept as axiomatic that most of our children cannot participate in our competitive sports and that true fitness can only be achieved by means of gruelling, intensive and persevering physical effort, it becomes evident that we must provide adequate and appropriate means of achieving universal *physical fitness*. Calisthenics, weight lifting, climbing obstacles, running, bicycling, skating, rope jumping, modified wrestling, etc., are admittedly not as appetizing as athletics, but they definitely assure achievement of the objective.

Granting that enjoyment of activities and the acquirement of spiritual, ethical and social gains are most desirable, it is equally clear that we would be well advised to leave all these factors to the parents, the church, the overall school environment. Our own teaching of moral standards must be incidental and must not unduly encroach on our primary responsibility of assuring the children true *physical fitness*. "Give to the body what belong to the body and give to the soul what belongs to the soul." Let the fitness program be gruelling, joyless, Spartan. There is a time and a place for spiritual and recreational activities. Do not dilute essential efforts with spicing, however succulent.

Keep in mind that sporadic, perfunctory, half-hearted activities are as time wasting as they are bound to be ineffective. We must drive with the intensity we do in conditioning of athletic teams or of our soldiers and sailors. Once given the "Full speed ahead" our physical educators know how to achieve the objective. Over in Carmichael, Cal., Coach Le Protti has worked out an intensive plan of this sort for every child in the school system. Suggest you write to him for a reprint.

We are starting from scratch after nearly fifty years of relative neglect of our children. The task ahead of us is a big one. We must first overcome the apathy and indifference of the parents and then perservere until the child accepts the enforced renaissance as part and parcel of his daily life habits. The rehabilitation phase of medicine simmered, a veritable stepchild, until Bernard Baruch vitalized it with millions of dollars in donations and Dr. Howard Rusk proved to be the right man for the job of "selling" the importance of rehabilitation to the laiety and to the medical profession. Today the whole world is acutely aware of the importance of the rehabilitation of the disabled. It may well take a fund of a hundred million dollars or more and a vital leader to effect a true *Renaissance of Physical Fitness*. The ideal leader, in my opinion, would be Ike Eisenhower, a man of wonderful personality, a profound believer in universal physical fitness, a man who lives what he preaches. The essential funds could come from donations contributed by the great mass of us who join Eisenhower in the conviction of the vital need of the *Renaissance* movement.

The overall emphasis is on *fitness* for our children. No one appears to be concerned about the adults. Every citizen has the inalienable right to go plumb to pot if he so chooses, and he quite apparently so chooses. Did you ever take a look at the miserable, malformed, atonic rolls of bacon, you see slinking along our beaches? No wonder every one uses darkly stained glasses. Twentieth century humanity will not look good alongside the statues of ancient Greeks or Romans, unless perhaps we drape them in Dior masterpieces.

Let's get back to the children. Physical activities require adequate and suitable equipment that may be costly, discouraging potential enthusiasm in promoting effective fitness programs. "Where there is a will there is a way." Back in 1944 I was directing the rehabilitation of thousands of convalescent soldiers at a Florida hospital. We had no equipment when we started. Within a few weeks, my staff, consisting of a few hundred dedicated physical educators, has set up numerous volleyball courts, handball and basketball courts, modified obstacle courses, utilizing anything and everything that a saw and nails could turn into needed equipment. We obtained empty tin cans from the camp kitchen, discarded pieces of one inch iron pipe from the plumbers, filled the cans with cement, stuck the pipes into them and had hundreds of barbells . . . Gaudy paint easily dressed up all this home made apparatus. Throughout the day, hundreds of our convalescents milled all over the field having great fun and exercise. Moral:—why not get your P.T.A. to use their own initiative in promoting something similar? Bet there are plenty of empty tin cans, pieces of discarded iron pipe and cheap cement in your own little town of Siwash . . . Obtain catalogues of playground apparatus and see what you can do to simulate some of the items of most effectiveness in a fitness program.

Time is an essential factor in assuring adequate conditioning. A school child hurrying through a change of clothes, reporting to gym, showering, dressing, return to classes, is not very apt to get much benefit from the brief minutes of actual "fitness" activities. It is evident that the present approach of jamming physical education into the daily class activities has not worked out satisfactorily. Perhaps educational activities should be concentrated to mornings and early afternoons. Then from three to five everyone (children and faculty) report for physical training, even as the athletes do.

That's my story . . . At 70 I am eager to lend a hand in advancing the cause of universal physical fitness. If there is anything I can do to help, drop me a note.

## THE KNEE AND THE LIGAMENTS

by KARL K. KLEIN,
Associate Professor

Reprinted from the *Texas Coach*, Sept. 1961

With the increasing emphasis on the use of weight training in athletic conditioning added stress is needed in the various aspects of research that will eventually give systematic coverage to the best use of systems and techniques that will ultimately result in programs based more on scientific fact. The utilization of empirical practices, to date, give adequate evidence that the training techniques with the use of weights can not be overlooked as a vital part for increasing athletic efficiency and from this starting point the research should be conducted.

In all of the forms of weight lifting practice there are few specific movements that have been capable of producing two distinct results. From basic kinesiological action, as related to specific movements of training technique, there is one exercise that should be surveyed carefully because of its dual effect on the part of the body in question, namely that of the knee joint. In a review of the present literature it will be found that the "deep squat" exercise is generally advocated as a basic exercise procedure for the building of musculature that supports the knee joint, as well as building of the strength of the leg musculature. It is only of late that the deep squat exer-

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## THE KNEE AND THE LIGAMENTS (Continued)

cise has been questioned for its dilatory effect on the joint proper as it is related to the ligament structures.

In advocating the deep squat exercises for building of leg strength it would be of pointed interest to those writers preparing the books and articles to review the medical literature in relation to the specific practice as it is related to the ligament structures of the knee joint from the standpoint of joint stability.

For those interested in a review of the literature specific to this problem the references are recommended for extended reading. The author believes that the work of Dr. Voshell,[2] Anatomy of the Knee; Dr. Stindler,[2] Kinesiology of the Human Body Under Normal and Pathological Conditions and Dr. Helfet's,[1] Mechanics of Derangement of the Medial Semi-Lunal Cartilage and their Management will make one more appreciative of the following research that has been accomplished in the Physical Education Rehabilitation Laboratory at the University of Texas.

For a complete understanding of the mechanics of the kinesiological function of the knee in its flexion and extension movement, as applied to normal function, it is suggested that the references be referred to for complete detail. The following simplified explanation is given in an effort to illustrate the fact that certain normal functions have to take place as the knee flexes and extends and any outside force that prevents this action from taking place has a detrimental effect on the ligament and internal structures of the knee joint. In normal function the lower leg rotates inward as the knee is bent and as the knee is extended it rotates outward to the normal starting position. The ligaments have a normal function in this effort and under normal circumstances are not seriously involved in this problem of abnormal stretch. Now, under weight lifting situations, as the person squats with the weights the feet are planted solidly on the floor with toes slightly outward and as the knee is bent the normal inward rotation effect can not take place. Actually an outward rotation action takes place during the squatting action which is abnormal. It is this action effort that places abnormal stress on the ligaments of the joint that causes ligament stretch. Also there is an abnormal compression within the joint that can result is a posterior cartilage tear when the person starts the standing effort following the deep squat.

Our interest, with all aspects of the problem of the ligaments of the knee, has become increasing concern when our injury records indicate that 35-40 percent of all of the knee cases worked with here in the laboratory have ligament involvement. Knowing that injury can produce ligament instability we became concerned with the possibility that some of the conditioning and preventive efforts might be partially responsible for creating some of the instability problems that would predispose the person to injury potential. It has been due to this basic ligament problem found in injury and post operative cases that instigated the following described research effort. The "Deep Squat" exercise of weight training was the area selected for study because of the controversial nature of the exercise in the field of training.

Following a complete literature review of the problem a series of anatomical dissections of the knee joint were made by the author at the University of Texas Medical School, Department of Anatomy. The measurement effort was to determine the distance or status of the medial and lateral ligament in the standing and squatting position. The average findings of 64 dissected cases are illustrated in Figure I. For both the medial and lateral ligament the

A COMPARATIVE STUDY OF DISTANCE FPOM THE MID-POINT OF ORIGIN OF COLLATERAL LIGAMENTS TO WEIGHT BEARING SURFACE OF FEMUR IN STANDING AND SQUAT POSITION OF THE KNEE

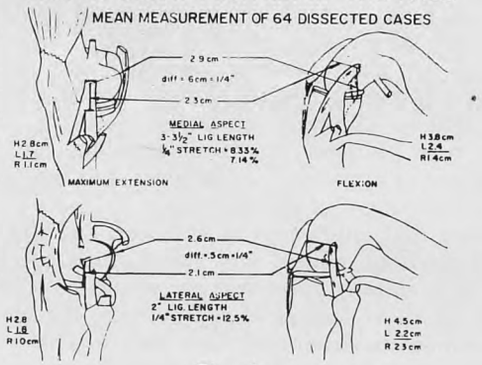


Fig. I

indications are that the ligament can be stretched in the squatting position because of the increase in distance that the ligament has to go through in the squat position. One of the basic conclusions from this phase of the study is that the lateral ligament would be subjected to more stretch due to the fact that it is basically a shorter ligament and that there would be a higher percentage of lateral ligament instability in any group of people doing a lot of deep squat exercises. We are not sure just how long a period of time is needed to develop this situation! According to the findings of this phase of the study specific areas of the medial ligament would be stretched from 7+ to 8+ percent while specific areas of the lateral ligament would be stretched 12+ percent in the deep squat process.

A second phase of the study was the actual measurement of two groups of subjects. *The Control group* was made up of beginning weight lifters (no deep squatters), basketball classes, and gymnastic classes from three colleges and universities totaling 386 cases. All knee injury cases were excluded. *The Experimental group* was made up of advanced lifters at various schools and participants at various weight lifting meets who have done considerable deep squat exercises in training and competition totaling 128 cases. Cases with indications of previous knee injury were not included as well as those competitive lifters who had indicated that they had not or did not use deep squatting exercises in training. Figure II illustrates

A STUDY OF THE EFFECT OF THE DEEP SQUAT EXERCISE ON LIGAMENT INSTABILITY

DEEP SQUATTERS 128 CASES

| | RIGHT LEG (LIGAMENT WEAKNESS) | | | | LEFT LEG | | | |
|---|---|---|---|---|---|---|---|---|
| | MED. | LAT. | CRUCIATES ANT. | CRUCIATES POST. | MED. | LAT. | CRUCIATES ANT. | CRUCIATES POST. |
| | 68 | 91 | 70 | 0 | 80 | 95 | 81 | 0 |
| % TOTAL LIGAMENT WEAKNESS | 52.3 | 71.7 | 54.7 | 0 | 62.5 | 74.2 | 62.8 | 0 |

49.2% MED. L.B.R., 68.8% LAT. L.B.R.; 50.0% ANT. CRUC. L.B.R.
62.3% WITH 2 OR MORE LIG. WEAK ON BOTH SIDES; 5.4% NO LIG. WEAK

NO SQUATTERS 386 CASES

| | RIGHT LEG (LIGAMENT WEAKNESS) | | | | LEFT LEG | | | |
|---|---|---|---|---|---|---|---|---|
| | MED. | LAT. | CRUCIATES ANT. | CRUCIATES POST. | MED. | LAT. | CRUCIATES ANT. | CRUCIATES POST. |
| | 24 | 16 | 149 | 0 | 14 | 23 | 146 | 0 |
| % TOTAL LIGAMENT WEAKNESS | 6.7 | 4.2 | 38.8 | 0 | 3.6 | 6.5 | 37.8 | 0 |

1.3% MED. L.B.R., 1.6% LAT. L.B.R.; 32.3% ANT. CRUC. L.B.R.;
1.0% WITH 2 OR MORE LIG. WEAK ON BOTH SIDES; 49.2% NO LIG. WEAK

Fig. II

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## THE KNEE AND THE LIGAMENTS (Continued)

the data accumulated for both groups. The standard orthopedic tests for ligament stability were administered to all subjects. The basis for determining ligament stability was either the ligament indicated or no movement. No effort was made to determine the exact degree of movement. If there was no observable movement the ligament was considered as stable and if there was noticable movement the ligament was considered as instable. If one were to carefully compare the various items of Figure II it is obvious that marked differences exist and we conclude that these differences are the result of the deep squat exercise.

*Conclusions:* The findings of the dissectional study coincide with the actual measurement study as it specifically related to the Deep Squatter group. Figure I indicates that there is more lateral ligament stretch than medial ligament stretch. Figure II Deep Squatter groups shows that there was 19.4 percent more right lateral ligament instability than the right medial ligament. There was also a 12 percent more left lateral ligament instability than left medial ligament.

In comparing the Deep Squatter Group with the Control Group there was 46 percent greater medial ligament instability in the right leg and 58 percent in the left leg of the Deep Squatter Group. There was 67 percent greater lateral ligament instability in the right leg and 59 percent in the left leg of the Deep Squatter Group. There was 16 percent greater anterior cruciate ligament instability in the right leg and 25 percent in the left leg of the Deep Squatter Group *BUT THE CONTROL GROUP HAD 44 PERCENT MORE MEMBERS WITH NO DEMONSTRATED LIGAMENT INSTABILITY than the Deep Squatter Group.*

All in all the indications, within the scope of this study, strongly indicated that some form of change or modification should be made with this specific exercise. Figure III illustrates the stretch effect on the medial and lateral ligament and the X-ray illustrates how the joint is "jacked apart" in the deep squat action.

Now what are the implications for athletics and the use of weight training for the building of leg strength and ligament stability? The evidence gathered in this study points to one conclusion and that is exercise modification so that the very definite values of weight training may be utilized for their strength building qualities. *The basic modification recommended is a simple one and that is to limit the Squat Exercise in its range of motion!*

At the present we are recommending that the squatting action be limited to things not quite paralleled to the floor, the heels being kept on the floor. Heel blocks are not to be used. Another important factor is that the toes should be kept at least parallel with each other *and never pointed outward.* In fact if the toes are pointed slightly inward there would be a reduction of stress on the collateral ligaments. In this action it would be somewhat impossible to squat too far in the specific movement. One of the recent issues of Strength and Health stated that the ¼ squat was best for developing leg strength and for athletics this is basically what we are looking for.

If it is necessary for the weight lifter to do deep squats for certain lifts then he is going to have to sacrifice ligaments stability for the activity. But, in the specific case of the athlete there is enough evidence to show that he needs all of the stabilizing parts of the joint functioning at maximum capacity to keep him active in the sport, and these parts are *namely strong ligaments which are considered the first line of defense against injury* and also maximum strength of the musculature that surround the joint and support it against the forces that are applied in contact as well as twisting and turning action.



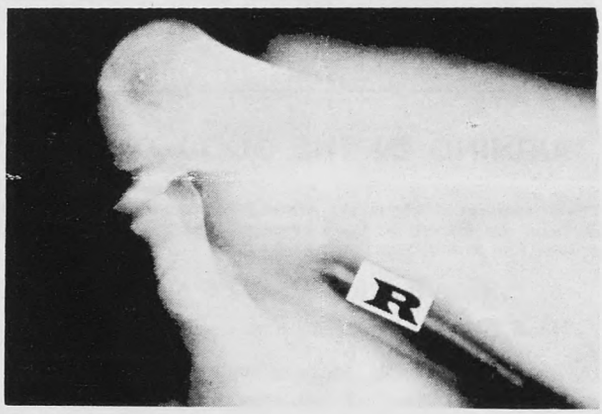

**Fig. III**

Stretch of the anterior fibers of the medial and lateral collateral ligaments and X-ray study of the "jacking apart" action of the deep squat action on the joint.

There are numerous implications of late life problems related to knee injury that have been created in youth and with the concepts of injury prevention through adequate and proper conditioning techniques we may well be on the way to further reduction of the problems that are created in athletics and training.

As a concluding thought in this matter visualize this! As age progresses and the musculature following its normal pattern of strength loss, due to the aging process, the stability of the ligaments take on an even more important function in the security of the joint. If the ligaments are weakened and instable the joint then increases in extra

Continued on page 16

## THE KNEE AND THE LIGAMENTS (Continued)

movement of anterior-posterior slippage as well as lateral and medial slippage. This added insecurity within the joint markedly decreases the mobility of the person and the sedentary activity then produces additional muscular strength loss and tone which increases general joint insecurity. So the cycle goes on and more inactivity results. The end result is that the major physical activity of the person is reduced so that the total physiological processes are impaired and untold problems result. It would seem that we who are active in training and sports should do our part to prevent this potential problem from developing in the group of young people who are working under our tutorage. We should do all possible to see that our training and conditioning practices will result in a sound body so these young people can carry on into adulthood and the aging years.

This investigation was supported, in part by a research grant from the Office of Vocational Rehabilitation, Department of Health, Education, and Welfare, Washington, D. C., in conjunction with the Office of Government Sponsored Research and the Department of Required Physical Education for Men of the University of Texas.

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## TRAINING IN THE GOOD OLD DAYS

Taken from an article in the Athletic Journal, *Conditioning a Football Team*, by Warren K. Giese, Football Coach, University of South Carolina. Vol. 37:6-7, Sept. 1956.

Submitted by CHARLES MARTIN,

Head Student Trainer, University of Oklahoma

Around 1900, W. W. Morgan was considered one of the leading conditioners of athletes in America. Here are some excerpts from his rules of training:

1. Take a black draught every evening. Black draught is a very active and nasty tasting cathartic.
2. In the morning when you first get up take a drink of hard cider or sherry and egg. Then take a sponge bath and rub with a coarse towel.
3. For breakfast eat a beefsteak cooked rare and stale bread. Use no milk, sugar, butter or potatoes except an ounce per week.
4. For dinner eat a rare roast beef and stale bread. No potatoes or vegetables of any kind with this meal.
5. For supper eat a lean steak or mutton chop without fat. Eat no pies or pastry of any kind.
6. Drink sparingly of water.
7. Do not eat beans or vegetables of any kind except an occasional raw onion.
8. If you feel weak in the morning, it comes from bathing. Do not bathe for a few days.

## 1961-62 NATIONAL COLLEGIATE CHAMPIONSHIP EVENTS

| | | |
|---|---|---|
| **BASEBALL** | Omaha, Nebraska<br>Host: University of Nebraska | June 11-15 |
| **BASKETBALL** (College) | | |
| Regionals | To be determined | Mar. 9-10 |
| Finals | Evansville, Indiana<br>Host: Evansville College | Mar. 15-17 |
| **BASKETBALL** (University) | | |
| First-round | To be determined | Mar. 12 or 13 |
| East Regional | Univ. of Maryland, College Park | Mar. 16-17 |
| Mideast Regional | Univ. of Iowa, Iowa City | Mar. 16-17 |
| Midwest Regional | Kansas State Univ., Manhattan | Mar. 16-17 |
| West Regional | B.Y.U., Provo, Utah | Mar. 16-17 |
| Finals | Fair & Exposition Center, Louisville, Kentucky<br>Host: University of Kentucky | Mar. 23-24 |
| **CROSS-COUNTRY** (College) | Wheaton College<br>Wheaton, Illinois | Nov. 18 |
| **CROSS-COUNTRY** (University) | Michigan State University<br>East Lansing | Nov. 27 |
| **FENCING** | Ohio State University<br>Columbus | Mar. 30-31 |
| **GOLF** | Duke University<br>Durham, North Carolina | June 18-23 |
| **GYMNASTICS** | University of New Mexico<br>Albuquerque | Mar. 30-31 |
| **ICE HOCKEY** | Utica, New York<br>Hosts: Colgate University and Hamilton College | Mar. 15-17 |
| **SKIING** | Squaw Valley, California<br>Hosts: Universities of California & Nevada | Mar. 22-24 |
| **SOCCER** | | |
| First-round | To be determined | Nov. 18 or 20 |
| Semifinals & Finals | St. Louis University<br>St. Louis, Missouri | Nov. 23 & 25 |
| **SWIMMING** | Ohio State University<br>Columbus | Mar. 29-31 |
| **TENNIS** | Stanford University<br>Stanford, California | June 18-23 |
| **TRACK & FIELD** | University of Oregon<br>Eugene | June 15-16 |
| **WRESTLING** | Oklahoma State University<br>Stillwater | Mar. 22-24 |

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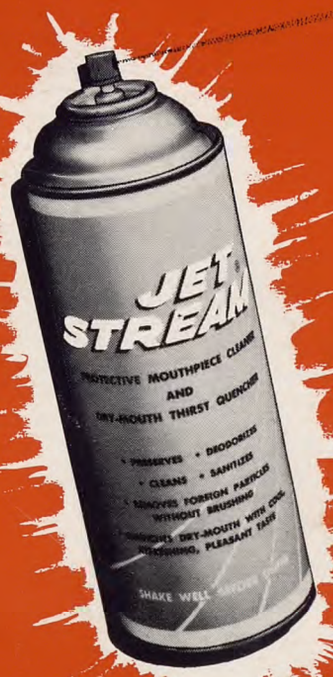


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