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PREVENTION OF FOOTBALL INJURIES

(TITLE)

BY

H. Roger Manuel

PLAN B PAPER

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR
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AND PREPARED IN COURSE

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YEAR

I HEREBY RECOMMEND THIS PLAN B PAPER BE ACCEPTED AS
FULFILLING THIS PART OF THE DEGREE, M.S. IN ED.

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CHAPTER I

INTRODUCTION

The purpose of this paper has been to develop an understanding of and workable methods for the prevention of injuries in football. Most of the available material discussed prevention as a part of an injury triangle which included prevention, treatment and rehabilitation.¹ No attempt has been made in this paper to discuss the latter two phases except to state that any football coach should be familiar with recognized treatment procedures and that the injured player should not participate until normal rehabilitation has taken place. Without rehabilitation a reoccurrence of the initial injury with even more severe complications most certainly will take place.

Through the years equipment and methods have been devised to lower the number of injuries due to hazards. Thorndike said, "Our present state of systematic and well balanced program had its inception in the 1890's."²

¹Don H. Donoghue and Ken Rawlinson, "Prevention and Treatment of Football Injuries, Scholastic Coach, XXVI (April, 1957), pp. 42-48.

²Augustus Thorndike, Athletic Injuries, Prevention, Diagnosis and Treatment (Philadelphia: Lee and Febigir, 1948), p. 17.

From then until the present coaches have worked with medical and scientific personnel to develop equipment of the lightest and least cumbersome variety to protect the most vulnerable areas of the anatomy.

In order to keep step with equipment improvements it was important to keep records of the types of injuries incurred and then legislate protective rules to prohibit the actions from which the injuries arose. The pioneer study in this field was made by Dr. Edward H. Nichols, team physician at Harvard, and it covered the years 1904-1909.³ It was as a direct result of this study that Dr. Nichols made recommendations concerning the mandatory wearing of protective equipment and the importance of conditioning. Dr. Nichols made several other important observations during his term as team physician two of which are still valid today. These were that a first team man slightly injured was inferior to a substitute and that "piling on" was the most frequent cause of injury.

With the approach of modern day football it was found that such things as diet and rest were important in the prevention of football injuries. There has been an evolution in injury prevention from no thought or precautions to a single trainer system and finally to the

³Ibid., p. 19.

present day set up of interrelationship of coach, player, manager, trainer, equipment manufacturer, medical person and so on down the line to and including the research worker and the rule maker.

It is believed by the writer that all football coaches should be familiar with methods of prevention in this field. Each year there have been many boys injured on the football field during both practice sessions and under game conditions. Many of these injuries could have been prevented. It should be the duty of every coach to do everything possible to prevent them.

The first step in the program has been to recognize the hazards involved in the activity. Periodical sources such as The Journal of the American Association of Health, Physical Education, and Recreation, Athletic Journal, Scholastic Coach and others have been consulted to determine what parts of the anatomy are most vulnerable. The Wisconsin Interscholastic Athletic Association listed the following breakdown by anatomical area: 20.8%, arm; 21.1%, knee; 14.4%, trunk; 14.0%, ankle; 8.9%, facial; 7.8%, shoulder; 7.0%, teeth; 5.3%, head and neck; .6%, kidney and spleen.⁴

⁴John E. Roberts, Secretary, Wisconsin Interscholastic Athletic Association, from personal correspondence, (August, 1962).

The next factor considered was conditioning. Much of the preseason conditioning has been the responsibility of the individual working with guides that were outlined by the coach. Once organized practices have begun, it will be the responsibility of the coach to see that a high level of conditioning is reached and maintained throughout the season. These conditioning sessions have been pointed toward improving the areas pointed out in the statistical report of injuries. It has been pointed out that for each injury prevented by conditioning there will be one less to be treated.⁵ Having reduced the number involved in one section of the triangle, prevention, fewer were involved in the other two portions, treatment and rehabilitation.

The final phase was the legal aspect which in this type of study may be considered by some as a by-product. Therefore, it has been assumed that in considering the safety of the athletes, the security of the coach also was insured. Carlson says, "Let us face the problem of tort liability realistically. We cannot claim ignorance of the law as an excuse. Our duty should be to know what the law is, remove every possibility for injury we can, and then exercise alert supervision."⁶

⁵Donoghue and Rawlinson, p. 42.

⁶Gordon T. Carlson, "I'll Be Suing You, Coach," Education Digest, XXIII (September, 1957), p. 48.

This paper has been divided into the following categories:

Facilities. The setting up of hazard free game and practice areas and the use of safe practice aids has been the first consideration.

Protective equipment. The equipment to be worn by all players has been discussed with emphasis on type and fitting.

Conditioning. The setting up of a preseason conditioning program emphasizing development of the points of stress (the neck, shoulders, knees, etc.) and a program for maintenance of a proper level of fitness for the season has been outlined.

Leadership and supervision. The responsibility of the coaching staff and the individual squad members to provide the proper leadership in safety aspects of the squad sessions from reporting for practice until the squad leaves the lockers following practice has been discussed. The responsibility of coaches and officials to strictly enforce the rules also was discussed.

Skill level. The role of proper execution of fundamental skills in the prevention of injuries as well as skill development as an influence of squad division has been discussed.

Diet. The reasons for stressing a proper diet has

been discussed, and an ideal training diet was suggested.

Rest and fatigue. Problems pertaining to both mental and physical fatigue have been discussed. Suggestions were made as to the proper amount of sleep and rest needed. Ways to detect and combat physical and mental fatigue were mentioned.

Reporting injuries. A thorough program of reporting injuries was formulated in an effort to recognize the particular hazards in a specific situation and to protect the school and coaching staff from judgments for liability.

CHAPTER II

FACILITIES

One of the first things a coach has done at the beginning of a new football season has been to make a detailed study of his existing facilities and practice aids. It has not been enough to merely recognize that these things may be unsafe or defective. Action must have been taken to eliminate these hazards before the first practice session. As Childs said, "There is no excuse for accidents which occur because of negligence in the care and maintenance of football facilities and equipment."⁷ Discussion of practice and game fields, blocking sleds, blocking dummies, and tackling dummies has been included in this section.

The most important and basic single item concerning the fields has been found to be good and level turf. This has been a year round concern which has eliminated physical causes of many sprains and strains of the ankles and knees. Good turf has provided a cushioning surface which has eliminated many of the scrapes, scratches, and contusions.

⁷John P. Childs, "Safety Methods in Football Administration," The Athletic Journal, XXXIII (October, 1952), p.52.

"Coaches know healthy turfgrass provides firm footing yet cushions falls to limit injuries."⁸ A coach could not be expected to be an expert on turf and its problems, but the coach must have seen that the following things were carried out:

1. A regular and systematic inspection of the playing fields has been made.
2. All holes and depressions have been filled.
3. Structural defects in the field have been corrected.

Mascaro said the four most common errors in construction are:

1. Poor internal drainage.
2. Poor surface drainage.
3. Improper texture of the soil.
4. Wrong type of grass.⁹

To have the turf in top condition for the opening of the season, a regular program of watering and mowing during the summer months must have been carried out. If the grass has been allowed to grow for lengthy periods between cuttings, it will have developed into a stiff stubble which has contributed to a large number of scrapes and lacerations.

Prior to the first practice, the coach has seen that practice fields have been marked. The marking substance

⁸Tom Mascaro, "Turfgrass Problems," The Athletic Journal, XLI (October, 1960), p.24.

⁹Ibid, p.25.

was a noncaustic material; under no circumstance should unslacked lime have been used. This has been made a national alliance rule.¹⁰

Prior to the beginning of the football season all blocking sleds, blocking dummies, and tackling dummies should have been inspected and necessary repairs made. While in use they should be observed carefully by the coach in charge of the activity. Seaton also recommended that a thorough check be made at the close of the season or semester so that repairs and replacements may be completed prior to the opening of a new season.¹¹ Governali commented, "The blocking and tackling dummies, the machines, and the sleds should be well protected by thick padding and in good order. The pits where the dummies are strung must be dug up and softened by mixing sawdust with the ground."¹² The writer suggested that the following points be checked regularly:

1. Check wooden parts for splits and splinters.
2. Check for loose bolts, joints, and fastenings.

¹⁰Official Football Rules (Chicago: National Federation of State High School Athletic Associations, 1962), p.5.

¹¹Don C. Seaton, Safety in Sports (New York: Prentice Hall Inc., 1948), p. 159.

¹²Paul Governali, "How to Cut Down on Injuries," Journal of Health, Physical Education and Recreation, XXVIII (October, 1955), p. 58.

3. Chains and ropes should be checked for wear.

Apparatus should not have been used if found in need of repair. Repairs should have been made as soon as possible.

Prior to the first game, a member of the staff should have insured adequate personnel for crowd control. If spectators have been allowed to roam the playing area, there has been considerable danger to both the spectators and to the players. Following the game and before using the field again a thorough clean up of the area should have been made. Following a game most fields have been found to include such debris as bottles, paper, etc. Arrangements should have been made for the pick up and disposal of the debris.

In summary, all possible hazards should have been eliminated. However, some hazards have remained such as curbs, and care should have been taken to protect the players from these.

CHAPTER III

EQUIPMENT

Every player on every squad in the school should have had a complete outfit of the safest, highest quality, and most properly fitted equipment possible. The rules have stated that a player must have worn the following equipment: a head protector, a face protector, an intra-oral mouth and tooth protector, and soft knee pads.¹³ This has been a most important aspect of the preventive program with the responsibility resting on the athletic director. T. B. Quigley put it this way:

"The equipment manufacturers take their responsibilities very seriously and are continuously modifying and improving the various types of armour worn in contact sport. The problem lies in the false economy of using worn, outmoded, or ill fitting gear. The outfitting of a team is no place for penny pinching."¹⁴

The Athletic Goods Manufacturers Association made these recommendations:

¹³Official Football Rules, (1962), p. 7.

¹⁴T. B. Quigley, "Some Observations on the Prevention and Treatment of Athletic Injuries," Proceedings of the thirty-fifth annual meeting of the American College Health Association, April 25-27, 1957 (in the files of Dr. Gerald Heath, M.D.).

1. Adequate equipment should be provided for every participant in athletics. The equipment should be of proven high quality and afford maximum safety to the participant.
2. Selection of athletic equipment should be a major responsibility of the coach. The head coach of each sport should either purchase new equipment or be consulted before purchases are made.
3. All sports participants should be instructed in the use and care of equipment.
4. The school administration has an obligation to see that plenty of equipment is provided for a complete athletic program. No sport should be slighted simply because it does not produce revenue.
5. Quality of equipment should never be sacrificed for price.¹⁵

It has not been enough just to purchase and furnish equipment to participants; it has also been the responsibility of the coach to see that it was properly worn.

"In most protective equipment which a coach must buy, his first consideration must be safety for the wearer. He should always endeavor to obtain the maximum factor of safety possible."¹⁶ Often players have not locked or adjusted protective equipment to fit themselves. The first practice session was the proper time for the

¹⁵How to Budget, Select, and Order Athletic Equipment (Chicago: Athletic Goods Manufacturers Association, 1958, p. 9.

¹⁶Ibid., p. 19.

initial check to see that each boys equipment has been placed and adjusted properly. Spot checks should have been made frequently as the season progressed to be sure that this objective has been met.

Equipment was divided into two categories:

1. That which should be furnished by the institution.
2. That which may be furnished by the institution.

The following equipment fell under the first heading and should have been of the highest quality: head gear and face bar, thigh pads, jersey, pants, shoes, and intra-oral mouth piece.

A head gear of the suspension type with a resilient lining has been recommended. Snively, Kovacic, and Chichester stated that a liner of semi-resilient or slow rebound material has been found to be the best type of protection when used with the standard suspension sling.¹⁷ According to the National Federation of State High School Athletic Associations Rules of 1959 the head gear must have been fitted with a protective bar or mask for the face.¹⁸ It has been recommended that the multiple bar type be

¹⁷George G. Snively, Charles Kovacic, and C. O. Chichester, "Design of Football Helmets," Research Quarterly, XXXII (May, 1961), p. 226.

¹⁸Official Football Rules (Chicago: National Federation of State High School Athletic Associations, 1959), p. 7.

used.¹⁹ The head gear should be fitted snugly, not being too tight or so large as to move around on the player's head.

To give maximum protection shoulder pads must have been fitted properly, laced, and adjusted under the arms. Next to the ankle and the knee, the shoulder girdle had the most disabling injuries. The pads should have protected but still have given freedom of movement. It was important that the pads were steel reinforced with cantilever suspension.

Blocking pads (or rib pads) were recommended for backs and ends. They have been found valuable to others when they had bruised and tender ribs. These were especially beneficial to those players who were frequently called on to make cross-body blocks.

Hip pads have been designed to protect the area along the crest of the ilium and coccyx including the kidney area. The muscles of the hip area also were protected by them. Most injuries in this area were caused by blows from an opponent or by hard falls. Properly fitted hip pads should have eliminated the majority of these injuries. The coach must have instructed boys how to wear these pads as most boys have had tendency to wear them too low.

¹⁹Official Football Rules, (1962), p. 7.

The anterior and lateral areas of the thigh were protected by the thigh pads. These areas were especially vulnerable to severe blows. If unprotected and struck, a painful muscle bruise has been the consequence.

Players were protected from contusions and scrapes by knee pads which fit into the pockets of the pants designed for this function. Others were protected from blows from the players knee by these pads. Pants should have been fitted so that these pads neither ride up nor slip down.

A good quality jersey that will hold its shape was required. It was recommended that all practice jerseys were of the long sleeve variety with built in elbow pads to protect against contusions and scrapes. The jersey should have fit tightly enough to aid in holding the shoulder pads in place. The supporter type jersey has been found to have the advantage of staying in place and holding the shoulder pads in place best. The jersey should have been made of a material which will allow frequent laundering.

Pants should have been a knit variety that hold their shape and also hold the thigh and knee pads in position. The pants should have been made of a material which will allow frequent laundering.

The shoes were considered by most coaches as the most important single piece of equipment. The shoe

should have been comfortable and supported the ankle and the bones of the arch of the foot. Care should have been taken to insure that all shoes were fitted properly and were tightly laced. It was felt that most boys should wear the high top shoe as the added increase in weight over the low cut variety will be outweighed by the added protection given to the ankle joint. If low cut shoes were worn, the ankles should have been wrapped or taped for every practice session and game. It was recommended that during preseason conditioning drills, players wear their shoes for the purpose of breaking them in and toughening their feet to prevent blisters.

The National Federation of State High School Associations has ruled that a boy must wear a fitted intra-oral mouth piece beginning with the 1962 season.²⁰ This rule has been amended to allow schools to use mouth pieces which have not been fitted if they met the approval of the dental association of the community.²¹ This mouth piece should have protected the teeth and lips and cushion the shock when a player was struck on the point of the chin.

The following equipment fell under the second heading and ideally should have been furnished and

²⁰Official Football Rules, (1962), p. 8.

²¹M. F. Sprunger, Assistant Executive Secretary, Illinois High School Association, from personal correspondence, (May, 1962).

laundered by the school. Because of financial reasons, it sometimes has been left up to the individual players to furnish this equipment: tee shirts, supporter, shorts and socks.

Tee shirts should have been worn by all players when they are wearing pads. This helped absorb perspiration (thus extending the life of the pads) and prevented chafing by the pads. Tee shirts should have been quarter sleeve style of heavy cotton.

Supporters should have been worn any time a boy was participating. The supporter should have had a three inch waistband, knitted pouch and tubular leg straps.

White cotton shorts should have been worn under the hip pads. These shorts aided in the absorption of perspiration as well as prevented chafing.

Two pairs of socks should have been worn--an inner pair of light weight, white cotton and a white outer pair of approximately 40-50% wool.

The personal equipment should have been laundered every day.

CHAPTER IV

CONDITIONING

Good physical conditioning enables the athlete to develop his body so that a maximum amount of energy may be produced with the minimum amount of effort, and this is the basis for developing endurance, agility, and skill. It is also a primary factor in the prevention of athletic injuries.²¹

Conditioning was defined as the progressive preparation of athletes for the severe physical exertions necessary in competitive athletics.²²

Modern day football has required boys to report for the initial practice sessions in good physical condition, ready for vigorous activity. Most schools have expected boys to be ready for strenuous work and drills on the first day of practice. University of Oklahoma coach, Charles "Bud" Wilkinson stated, "Since our two-a-day practice sessions are much more physically grueling than any game can possibly be, the player must be in perfect

²¹George Stromgren, "Diet and Nutrition in Athletics," Athletic Journal, XLI (October, 1960), p. 49.

²²Joe Carlo, "An Off-Season Conditioning Program," Athletic Journal, XL (September, 1959), p. 76.

shape the first day of practice."²³

Any conditioning program should have begun with a thorough physical examination by a medical doctor. Childs recommended that tests and examinations should have been given before a boy did any work whatsoever in football.²⁴

The writer has suggested that the medical examination has been complete and thorough and has included:

1. Name
2. Address
3. Phone number
4. Parents' name
5. Date of birth
6. Date of examination
7. Detailed medical history with regard for old injuries and past illnesses.
8. Height
9. Weight
10. General posture
11. Heart
 - a. Murmur
 - b. Rhythm
 - c. Rate
 - Normal
 - After 15 hops
 - After 2 minutes
12. Blood pressure
13. Lungs
 - a. Percussion
 - b. Auscultation

²⁴Childs, p. 20.

14. Hernia
15. Urinalysis
 - a. Specific gravity
 - b. Albumin
 - c. Sugar
 - d. Casts
16. Blood analysis
17. Orthopedic defects
 - a. Feet
 - b. Spine
18. Skin Care
19. Contagion
20. Ears
 - a. Right
 - b. Left
21. Eyes
 - a. Right
 - b. Left
22. Glands
23. Nose and throat
24. Tonsils
25. Dental

A copy of the examination should have been filed in the schools athletic office. Boys who have not met the standards required by the doctors should not have been permitted to draw equipment and participate. (See Appendix A.)

All prospective football players should have been briefed as to the desired activities and results of a preseason conditioning program. This could have been

explained in a meeting during the final week of school prior to the summer vacation. The most vulnerable points of stress should have been strengthened during this program. These areas have been found to be the neck, shoulder, knees, and ankles. Attention also was given to the back, abdomen, legs, arms, and hands. Specific exercises have been prescribed for the various areas. The following exercises served this function.

The contrasting types of conditioning programs have been outlined. The first program used body weight for resistance, and the second used weights.

The following exercises were prescribed by McCloy:

Explanation of terms:

1. "Counterlike" means to repeat same exercise to opposite side.
2. If an ankle or hamstring has recently been injured, care should be taken in performing exercises 1, 2, 4 and 5.
3. "Bounce" means when the performer is in the indicated position he executes a downward movement while holding that position to put greater strain on either supporting muscles or ligaments or both.

Exercise 1: To strengthen thigh muscles and inner knee ligaments.

Starting position: Standing, wide-stride-stand, hands on hips.

- Procedure:
- (a) Move weight to left and squat far down over left foot.
 - (b) Press downward on right knee with right hand three times, at the same time "bouncing" downward over left foot.
 - (c) Return to starting position.
 - (d) Counterlike.

Exercise 2: To strengthen ankle ligaments.

Starting position: Front leaning rest, feet extended, resting on back (top) of feet.

Procedure: (a) Bounce up and down on toes three times.
(b) Turn trunk to left, supporting feet on lower side of ankles. Bounce three times.
(c) Same to right.
(d) Turn back to front leaning rest, supporting feet on inner borders, and bounce up and down three times.

Exercise 3: To strengthen muscles of chest, arms, and shoulders.

Starting position: Front leaning rest, support hands on fingers only.

Procedure: Execute (finger tip) push ups. Keep back and legs in line. Press down with fingers as hard as possible.

Exercise 4: To strengthen outer knee ligaments.

Starting position: Side leaning rest on left hand and left foot, right foot resting on inner side of left knee.

Procedure: (a) Raise outer side of left ankle from floor and bounce up and down three times.
(b) Counterlike.

Exercise 5: To strengthen inner knee ligaments.

Starting position: Side leaning rest on left hand and right foot, left foot (outer side of ankle) resting atop right knee.

Procedure: (a) Raise outer side of right ankle. Bounce up and down three times.
(b) Counterlike.

Exercise 6: To strengthen and stretch hamstrings and thigh muscles.

Starting position: "Split" position, left leg forward, right leg back, supporting with both hands on either side below forward thigh.

- Procedure: (a) Bounce gently up and down three times.
(b) Turn 180 degrees and execute counterlike movement.

Note: Go easy on this one until hamstrings are well stretched.

Exercise 7: To strengthen and stretch front thigh muscles.

Starting position: On knees, lower legs extended backward, feet extended, arms at side.

- Procedure: (a) Bend backward at knees only, trunk in line with thighs, arms swinging forward and upward.
(b) Return to starting position.

Exercise 8: To strengthen abdomen.

Starting position: Lying on back, hands on front of thighs.

- Procedure: (a) Keeping small of back on floor, "curl" trunk forward and rotate slightly to left, reach down front of left leg with right hand, and try to touch left knee without raising small of back from floor.
(b) Return to starting position.
(c) Counterlike.

Exercise 9: To strengthen muscles of upper back.

Starting position: Lying on back (trunk), legs raised as much as necessary to be able to execute the exercise, arms flat on floor past hips.

- Procedure: (a) Press downward hard with arms, raising all of trunk below shoulders from floor.
(b) Return to starting position.

Exercise 10: To strengthen abdomen and flexor muscles.

Starting position: Lying on back, hands on fronts of thighs.

- Procedure: (a) Flex trunk forward and upward and flex thighs (knees straight) upward, pressing downward on thighs with hands.
(b) "Bounce" hard upward with trunk and thighs three times.
(c) Return to starting position.

Exercise 11: To stretch hamstrings.

Starting position: Sit on floor, knees straight, trunk forward, hands grasping ankles.

Procedure: (a) Keeping knees straight, pull trunk slowly forward and downward as far as possible without too much pain in backs of legs and thighs. "Bounce" downward three times.

(b) Return to starting position.

Exercise 12: To develop front shoulder muscles used in the "arm shiver".

Starting position: Lying on floor, face downward, arms straight at sides, palms downward on floor.

Procedure: (a) Raise legs and hips from floor, pushing down hard with hands (arms straight). If unable to do this at first, flex legs at knees to reduce leverage.

(b) Return to starting position.

Exercise 13: To develop trunk and shoulder rotators.

Starting position: Lying on back, arms sideward at right angles at trunk, palms on floor, thighs vertical from hips.

Procedure: (a) Swing legs (knees straight) as far to left as possible.

(b) Return to starting position.

(c) Counterlike.

Exercise 14: To strengthen all posterior side muscles.

Starting position: Lying on back, knees very slightly flexed, fists on floor beside top of head.

Procedure: (a) Raise straight body on head, fists and heels, and "bounce" upward three times.

(b) Return to starting position.

Exercise 15: To develop anterior side muscles.

Starting position: Lying face down on floor, arms above head, resting at full length on floor, palms down.

- Procedure: (a) Press downward with arms, raise body from floor by strength of shoulder and anterior trunk muscle.
- (b) Return to starting position.
- Note: If subject cannot do this exercise at first, he may keep forearms on floor until he is strong enough to do the exercise as described.

Exercise 16: To strengthen all back muscles.

Starting position: Medium length forward lunge position, left leg forward, arms vertical.

- Procedure: (a) Bend trunk forward and downward as far as possible, "curling" spine forward.
- (b) "Uncurl" spine upward to a position 45 degrees forward of hips.
- Repeat several times.
- (c) Counterlike (right leg forward).²⁵

George and Evans offered the following training program using weights:

Light days (those using arms and shoulders)--Monday and Thursday

1. Warmup (Use 40-60 pounds including the bar)
 - (a) Face bar, feet shoulder width apart, toes on line with the bar.
 - (b) Grasp bar, hands shoulder width apart, palms on top of bar.
 - (c) Lift quickly to shoulder.
 - (d) Press weight arms length over head.
 - (e) Lower to shoulders.
 - (f) Do full knee bend.
 - (g) Lower weight to floor.Do 15 repetitions.
Note: (a), (b), and (c) are called "cleaning".
2. Two arm press (Use weight which will allow 8-12 repetitions)

²⁵C. H. McCloy, Do It Yourself, Prevent Injury (National Federation of State High School Athletic Associations), pamphlet in writer's file.

- (a) Clean the weight.
 - (b) Push to full overhead extension.
 - (c) Lower to shoulders.
Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 5 pounds.
3. Two arm curl (Use weight which will allow 8-12 repetitions)
- (a) Normal stance, grip with palms under bar.
 - (b) Lift bar and hold with arms hanging naturally.
 - (c) Raise bar to shoulder.
 - (d) Lower bar to position described in (b).
Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 5 pounds.
4. Triceps (Use weight which will allow 8-12 repetitions)
- (a) Boy takes position of reclining on a bench.
 - (b) Extend arms toward ceiling with palms toward head.
 - (c) Bar is handed to boy. Grip as in the curl.
 - (d) Lower bar to head.
 - (e) Raise bar to starting position.
Note: During exercise upper arms do not move.
Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add $2\frac{1}{2}$ pounds.
5. Rowing exercise (Use weight which will allow 8-12 repetitions)
- (a) Normal stance, knees straight and locked.
 - (b) Grip with palms on top of bar.
 - (c) Bring bar up to stomach or chest.
 - (d) Lower to floor.
Do 8-12 repetitions, rest, and repeat.
When a boy can do two sets of 12 repetitions, add 5 pounds.
6. Sit ups (Start without weight)
- (a) Boy lies down on incline board. Hook feet under strap, hands behind head.
 - (b) With knees stiff bring upper body as far forward as possible.
 - (c) Return to starting position.
Do 20 repetitions.
When a boy can do 20 repetitions, add 5 pounds.

7. Chinning with resistance (Start without weight)
 - (a) Jump up and grasp bar as in the curl, palms toward the face.
 - (b) Pull up until chin is above the bar.
 - (c) Lower to full extension.
Do 12 repetitions.
When a boy can do 12 repetitions, add 5 pounds.

8. Press behind the head (Use weight which will allow 8-12 repetitions)
 - (a) Clean.
 - (b) Press.
 - (c) Lower to back of neck.
 - (d) Press over head.
 - (e) Lower to back of neck.
Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 5 pounds.

9. Reverse curl (Use weight which will allow 8-12 repetitions)
 - (a) Normal stance, palms on top of bar.
 - (b) Stand erect with bar resting against legs.
 - (c) Raise bar to shoulders.
 - (d) Lower bar to legs.
Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 5 pounds.

10. Upright rowing (Use weight which will allow 8-12 repetitions)
 - (a) First position same as in reverse curl.
 - (b) Pull bar to chin, elbows in front of body.
 - (c) Lower slowly to legs.
Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 5 pounds.

Summary:

1. The light day exercises are concentrated on the hands, arms, and shoulders.

2. A well developed upper body aids the prospective football player by:
 - (a) Helping the player block and tackle with more coordination and power.
 - (b) Making a normally vulnerable portion of his body less susceptible to injury.

3. These exercises are very beneficial to the defensive player who must use his hands and arms toward off offensive blockers.
4. Work on the chinning bar will prevent the common "knocked down" shoulder.
5. Train to develop strength. Do not attempt to build up endurance by repetition.

Heavy days (those using legs and backs)--Tuesday and Friday

1. Warm up (Same as for light days)
2. Deep knee bend (Use weight which allows 8-12 repetitions)
Note: A loader-spotter on each side places bar on boy's shoulders.
 - (a) Feet shoulder width apart.
 - (b) With weight in place do deep knee bend.
 - (c) Return to starting position.Do 8-12 repetitions, rest and repeat.
When boy can do two sets of 12 repetitions, add 10 pounds.
3. Heavy pull over (Use weight which will allow 8-12 repetitions)
 - (a) Boy reclines on bench, arms at 60 degree angle, hands 8 inches apart.
 - (b) Lower bar as far below head as possible.
 - (c) Return to starting position.Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 5 pounds.
4. Front squat (Use maximum weight boy can clean)
 - (a) Clean.
 - (b) Do full squat.
 - (c) Return to standing position.Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 10 pounds.
5. Bench press (Use weight which allows 8-12 repetitions)
 - (a) Boy lies on bench with feet touching on either side and arms extended toward ceiling.
 - (b) Lower bar to chest.
 - (c) Extend arms toward ceiling.

Do 8-12 repetitions.

When a boy can do 12 repetitions, add 5 pounds.

6. Dead lift (Use a light weight for six weeks)
 - (a) Normal stance. One hand has palm toward body, other hand palm away from body.
 - (b) With knees partially flexed at start, stand erect.
 - (c) Lower bar to within two or three inches of floor.
Do 8-12 repetitions, rest and repeat.
After six weeks add 5 pounds each time a boy can do two sets of 12 repetitions.
7. Shoulder shrug (Use weight which allows 8-12 repetitions)
 - (a) Normal stance. Grip bar with palms down.
 - (b) Raise bar to arms length resting against thighs.
 - (c) Thrust shoulders forward and raise them as high as possible.
 - (d) Before returning to starting position force shoulders back as far as possible.
Do 8-12 repetitions, rest and repeat.
When a boy can do two sets of 12 repetitions, add 10 pounds.
8. Neck exercise
 - (a) Partner straddles back while boy is on hands and knees.
 - (b) Partner places hands on boy's head and resists movements of the head.
Do 8-12 repetitions in each direction.
9. Leg press (Use weight which will allow 8-12 repetitions)
 - (a) Boy lies on back, body well under bar.
 - (b) Bar rests on balls of feet; feet shoulder width apart.
 - (c) Legs are extended toward ceiling.
 - (d) Lower bar.
Do 8-12 repetitions.
When a boy can do 12 repetitions, add 10 pounds.
10. Wrist and grip (Use weight which will allow 3-5 repetitions.)
 - (a) Stand erect. Hold roller arms length away and parallel to the floor.

- (b) Roll weight up by slowly twisting cylinder.
- (c) Unroll slowly. Do not allow cylinder to slip.
Do 3-5 repetitions.
When a boy can do 5 repetitions, add $2\frac{1}{2}$ pounds.²⁶

Summary:

The exercises for the heavy days were most important for the development of the legs and back. The muscles in these areas were most useful in playing football well. Deep knee bends have built up resistance to knee injuries. Be certain the catchers were in place and the lifter warmed up thoroughly before trying any heavy lifts. The schedule for heavy days called for the following exercises:

1. The warm up
2. The keep knee bend
3. The heavy pull over
4. The front squat
5. The bench press
6. The dead lift
7. The shoulder shrug
8. The neck exercise
9. The leg press
10. Wrist and grip exercise

The big three football exercises were the deep knee bends, the dead lift, and the leg press. The top load should have been used, and the player should have gone for one more repetition as he finished the exercises.

Wednesday was called agility day, and the authors used this as a rest day from lifting. The authors said

²⁶Elvan George and Ralph Evans, Weight Training for Football (Englewood Cliffs, New Jersey: Prentice Hall Inc., 1959), pp. 29-78.

that any type of tumbling, running, etc. was acceptable, and each agility day should have been finished with a burst of all out running.

McCloy's²⁷ program was simple and no apparatus was needed to perform. Boys could have done this at home. The program suggested by George and Evans²⁸ needed considerable equipment, organization, and supervision.

Approximately five weeks prior to the first organized practice session a reminder should have been sent to all prospects in the form of a letter. The letter should have contained:

1. A greeting from the coach.
2. A reminder to have a physical examination before beginning workouts.
3. A reminder of the date, time, and place for issuance of equipment.
4. A reminder of the date and time for the first practice session.
5. A reminder of the preseason conditioning program.

The preseason conditioning program should have begun four weeks before the first practice. In high schools it often has not been possible to make equipment and personnel available for such a program as suggested by

²⁷McCloy, p. 48.

²⁸George and Evans, p. 78.

George and Evans.²⁹ Having considered this factor, a suggested preseason program by the writer was developed:

First week

1. 440 yards--jog and stride (backs--75 seconds, line--90 seconds)
2. Fingertip pushups--10 repetitions
3. Knee exercises--1 repetition
4. Ankle exercises--1 repetition
5. Hamstring exercises--1 repetition
6. 50 yard sprints--4 repetitions
7. Situps--20 repetitions
8. Neck bridges--2 minutes forward, 2 minutes backward
9. Maximum chinups

Second week

1. 880 yards--jog and stride (Backs--3 minutes, 30 seconds; line--3 minutes, 50 seconds)
2. Fingertip pushups--15 repetitions
3. Knee exercises--2 repetitions
4. Ankle exercises--2 repetitions
5. Hamstring exercises--2 repetitions
6. 50 yard sprints--8 repetitions
7. Neck bridges--5 minutes forward, 5 minutes backward
8. Situps--30 repetitions
9. Jog the length of the field, doing forward roll every 10 yards
10. Maximum chinups

Third week

1. 880 yards (Backs--3 minutes, 15 seconds; line--3 minutes, 30 seconds)
2. Fingertip pushups--20 repetitions
3. Knee exercises--3 repetitions
4. Ankle exercises--3 repetitions
5. Hamstring exercises--3 repetitions
6. 50 yard sprints--10 repetitions
7. Neck bridges--5 minutes forward, 5 minutes backward
8. Situps--40 repetitions
9. Jog the length of the field, doing forward roll every 10 yards--2 repetitions
10. Maximum chinups

²⁹Ibid, p. 79.

Fourth week

1. 880 yards (Back--2 minutes, 50 seconds; line--3 minutes, 15 seconds)
2. Fingertip pushups--25 repetitions
3. Knee exercises--4 repetitions
4. Ankle exercises--4 repetitions
5. Hamstring exercises--4 repetitions
6. 75 yard sprints--10 repetitions
7. Neck bridges--5 minutes forward, 5 minutes backward
8. Situps--50 repetitions
9. Jog the length of the field, doing forward roll every 10 yards--2 repetitions
10. Maximum chinups

Once the preliminary practice sessions were begun the boys were under the direct control of the coach. The coach first should have seen that all boys participated in a series of vigorous warm up drills before each practice session or game. These should have included calisthenics and exercises which stretched and warmed up the various areas of the body. These may have been varied to decrease boredom but should have included exercises which warmed up and strengthened the regions of the neck, shoulder, arm, spine, hip, leg, and ankle.

Another factor often overlooked has been reconditioning of previous injuries. This should have included not only those injuries of the present season but also those of seasons past. Injuries should have been recorded in the histories of all players. When a player has been injured to the extent that the player was under a doctor's care and missed one or more practices or games, the player should not have been allowed to return to

practice until released by the attending physician. If little practice time was lost, the individual has continued to maintain a high level of conditioning. If extensive time was lost, the player then had to recondition as if just starting the season.

Most authorities have maintained that special protection was necessary when the player returned to practice.

Thorndike had this to say about sprains:

From the surgical pathology it is clear that healing takes place within the ligament by scar tissue, thereby leaving the ligament with definite loss of tone. It is axiomatic, therefore, that 'once a sprain, always a sprain,' and that the joint will subsequently needs a supportive bandage whenever used for vigorous exercise or sport.³⁰

Other types of injuries also needed support and protection.

³⁰Thorndike, p. 72.

CHAPTER V

LEADERSHIP AND SUPERVISION

The leadership and supervision of the football squad has been the responsibility of three groups: the coaching staff, the squad members, and the game officials. Each group should have understood and carried out these responsibilities.

The coaching staff must have had the responsibility of supervising the squad from the time the first boy entered the locker room before practice or game until the last boy left after practice or game. Cramer, Houghton, and Cramer stressed this point in their rules of the training room, "Supervise all play and practices since many serious injuries are received by athletes when just fooling around. Control your squad."³¹ The coach also has been the leader, for through the coach's example young players could be encouraged to use proper training methods.³²

³¹Frank Cramer, L. L. Houghton, and Charles Cramer, A Training Room Manual (Gardner, Kansas: Cramer's, no date), p. 9

³²George A. Katchmer, "Football Conditioning and Training Tips," The Athletic Journal, XLI (May, 1961), p. 30.

Supervision should have begun with the selection of a staff. The method of selection has varied under different situations. It was felt by the writer that these points as offered by Bateman and Governali were sound. The staff member should have had:

1. successful playing experiences and a true understanding of the game.
2. ability to teach and demonstrate the finer points of skills and techniques.
3. a degree in physical education from a reputable college or university.
4. a personality which attracts players and inspires their confidence, respect, and enthusiasm.
5. ability to work with people harmoniously, particularly the alumni and the institutional administration.³³

If a school could not provide a man who has been properly trained to teach the sport desired, that sport should not have been an activity in the school athletic program. After the staff had been selected, the head coach should have delegated certain responsibilities to the assistants. These should have included supervision of the shower rooms, locker rooms and training rooms. A coach should have been assigned to check and care for equipment and to check facilities.

Instruction by the coaches has been seen to be most important in teaching skills. As will be seen in a later

³³John L. Bateman and Paul V. Governali, Football Fundamentals (New York: McGraw-Hill Co. Inc., 1957), p. 5.

chapter, the execution of proper skills has been an important phase of prevention. Poor teaching has resulted in bad techniques thus having caused injuries.³⁴ The final analysis has pointed to the head coach as having been responsible for the entire program. DaGrosa said, "His duty is to condition the teams and see that they are in perfect mental and physical condition for football."³⁵

The squads responsibilities have included proper diet, rest, and attitude. The diet and rest factor will be discussed in succeeding chapters. At the high school level boys have respected and emulated certain leaders within the squad. These leaders then should have set the proper example. Thus proper training and ideals have come from leaders on the squad.³⁶

An integral part of supervision has been that which comes from enforcement of the rules by the officials. Forsythe pointed out that while the game was in progress, the boys actually have been under the care of the officials, especially in high school games.³⁷ A knowledge of the rules has been recognized as an important part of officiating,

³⁴Ibid., p. 19.

³⁵John DaGrosa, Functional Football (2nd ed.; Philadelphia: W. B. Saunders Co., 1942), p. 293.

³⁶Bateman and Governali, p. 19.

³⁷Charles E. Forsythe, Administration in High School Athletics (New York: Prentice-Hall Inc., 1939), p. 286.

but an official must also have been physically and mentally alert and used good judgment. A good official has anticipated trouble and prevented it. The very presence of a good official has reduced fouls.³⁸ Without the diligent enforcement of the rules by dedicated officials the progress made by the rule makers would have been lost.

³⁸Football Official's Manual (3rd ed.; Chicago: National Federation of State High School Athletic Associations, no date), p. 5.

CHAPTER VI

SKILL LEVEL AND SQUAD SIZE

It has been evident that the proper execution of skills and squad size were important on the field phases of injury prevention. Skill level has taken the form of body control. Squad size has been found to be important in rest and use of players.

As was seen in the preceding chapter one of the roles of the coach was to teach proper skills. Bible has listed blocking and tackling as the basic skills which should have been taught.³⁹ A simple rule which should have been remembered: "In tackling or being tackled, keep alert and in balance. Protect yourself-- you're no good to the team in a plaster cast."⁴⁰ In his article Tackling Can Be Safe: Brockmeyer has given the following techniques: Follow these safe simple techniques when tackling:

1. Keep your eyes open and on the target and seek a position. Remember most backs will avoid you, so position is important.

³⁹Dana X. Bible, Championship Football (New York: Prentice-Hall Inc., 1947), p. 4.

⁴⁰It Takes Time for Sports Equipment to be Made Right (National Federation of State High School Athletic Associations), pamphlet in writer's file, p. 3.

2. Feet wide apart and body controlled with arms in gorilla-like style.
 - a. You are in a better position to fight off blockers.
 - b. This makes the ball carrier's shoulder fakes show, so his fakes will be of little use.
 - c. Trap him by position using side lines, team mates, or blocked out players.
3. Get in close before you show.
 - a. Get in real close and then take one more step. Step through ball carrier.
 - b. You can never get in too close.
4. Drop your shoulder at the carrier's waistline and drive into him.
 - a. Never dive toward ball carrier, keep your feet under you as long as you possibly can.
 - b. Avoid hitting too far from target. This eliminates falling to the knees on tackling and the possibility of getting the carrier's knees in your face or his cleats on your hands.
5. On solid contact, lock your arms around him and lift the ball carrier off the ground.
 - a. Failure to lock arms comes from poor shoulder contact or from getting the head into the target instead of the shoulders.
 - b. Failure of a leg drive results in poor shoulder contact using a bent back and too low approach causing the head to be down and in an unsafe position.
6. Aim the head with the shoulder, but let the head slip behind the carrier.
 - a. When good shoulder contact is made, the head will slip past ribs of the carrier without too much practice.
 - b. Carriers today in open field play like to cut back into the tacklers as this gives greater opportunities for the use of fakes and the use of leg drive to free themselves.
 - c. You will notice from watching any good college or professional game that seldom does the tackler throw his head and body in front of the carriers.⁴¹

⁴¹Ibid., p. 3.

Bible has formulated a blockers code which has stated that the player who wanted to improve his blocking should have done these things:

1. He should study the technique of blocking--learn to utilize his physical equipment, whatever it is, to the fullest.
2. He should practice hard and regularly, establishing good blocking habits in blocking drills, on the blocking dummy, in scrimmage and, whenever opportunity affords, in games.
3. He should work to improve his speed and mobility--by taking starts, by running hard in wind sprints and with appropriate exercises and drills.
4. He should keep himself in condition to absorb hard knocks by observing sane living rules and by wearing at all times the protective equipment issued to him.
5. When the time comes to take an opponent out of the touchdown trail, he should explode! Beating the other fellow to the punch is important in boxing. In blocking, it is essential.⁴²

All players must have been taught to fall and protect themselves as well as the obvious skills of blocking and tackling. DaGrosa has said that most players were injured in two ways:

1. Incorrect position of bodies when receiving shock (lack of technique in execution)
2. Relaxation upon receiving shock (stopping, quitting, loafing during scrimmage)⁴³

If these two points were important, it has then become

⁴²Bible, p. 7.

⁴³DaGrosa, p. 296.

obvious that sound skills should have been taught and repeated until they became habits. To combat these points the National Federation of State High School Athletic Associations has listed these safety commandments:

1. Before contact or a fall, pull in your head. Hide it in your shoulders. Don't stick out your neck. Keep it short and straight.
2. In falling, a rigid arm can break a collarbone. Roll or absorb shock by degrees. You'll be around longer.⁴⁴

Confidence must have been gained by the individual player in the ability to execute the skills and carry them all the way through so that there was no stopping or hesitation.

The coach should have encouraged a goodly number of boys to come out for the squad and tried to keep as many boys as possible for the season. Probably the most important reason has been found to be the factor of fatigue. To combat fatigue there should have been at least two players for each position.⁴⁵ It was felt by the writer that three players for each position might have been better, for if fatigue entered into a game situation, it most certainly has entered into the practice situation. The number per position has been found important when considering previous recent injury and illness for Forsythe cautioned to be especially careful of boys after serious,

⁴⁴It Takes Time for Sports Equipment to be Made Right,
p. 3.

⁴⁵Forsythe, p. 284.

prolonged illness.⁴⁶ Forsythe continued by saying that injuries appeared to be less frequent as the average size of the squad increased.⁴⁷ Having agreed with the importance of squad size, the writer has observed from personal experience certain boys whose lack of motor ability has kept them from performing the basic skills in a safe manner. In the case of these individuals it might have been best to eliminate them from scrimmages with the more advanced members of the squad. If they had exhibited loyalty, and interest, these boys might have been induced to become managers or student trainers.

A final point including both skill level and squad size was the level of competition. The coach has been able to control this fairly easily during practice. To do this the coach should have been careful in matching players and may have made use of varsity, junior varsity, sophomore, and freshmen squads. A safety precaution of first importance should have been the policy of providing as nearly equitable competition as was possible in all athletic contests.⁴⁸ When scheduling games the coach or athletic director should have scheduled teams from schools with approximately the same size enrollment.

⁴⁶Ibid., p. 284.

⁴⁷Ibid., p. 285.

⁴⁸Ibid., p. 286.

CHAPTER VII

DIET

Injuries have been reduced when the body was functioning at near peak efficiency. Proper diet has lead to this efficient operation. In gathering data for this paper a wide range of beliefs and fads were encountered. It was felt by the writer, after study of these facts and fads from many sources, that diet contributed to the prevention of football injuries for these reasons:

1. Proper diet was required for optimum energy.
2. A proper diet was required for the body to function efficiently.
3. A daily supply of Vitamin C was found to be beneficial in tissue repair and prevention of colds.
4. The pregame meal determined to some extent the performance of the athlete in the game.

Considering points one and two together, it was felt that the main problem was not one of different types of food for athletes but simply a normal, well rounded diet daily. Dr. Ralph W. Alexander of Cornell University observed:

The search for a diet which will bolster the performance of athletes is filled with fads and fancies. The truth of the matter is that athletes,

just as other people, require only a balanced diet adequate in the known essential substances and providing sufficient calories so that weight can be maintained.⁴⁹

Dayton has further pointed out that the proper proportions of the three foodstuffs were: carbohydrates, 50%; fats, 40%; and proteins, 10%.⁵⁰ Dolan suggested a diet of from four thousand five hundred to five thousand calories per day for a football player during the season.⁵¹ The diet program has been considered as a long term proposition.

The program should have:

1. Included a supply of energy yielding nutrients.
2. Helped counteract fatigue.
3. Maintained the athlete at proper weight for maximum performance.
4. Furnished essentials for growth, development, and function.⁵²

The meals should have been served at a regular time. It has been found that the digestive system worked best when it performed at regular intervals.⁵³ Food fads were relatively unimportant except for a possible psychological boost.

⁴⁹Ralph W. Alexander, "The Role of the Internist in Athletic Medicine," Student Medicine, VIII (February, 1960), p. 255.

⁵⁰William Dayton, Athletic Training and Conditioning (New York: The Ronald Press Co., 1960), p. 28.

⁵¹Joseph P. Dolan, Treatment and Prevention of Athletic Injuries (Danville, Illinois: The Interstate, 1955), p. 285.

⁵²Ibid., p. 29

⁵³Ibid., p. 30

Evidence has indicated that the athletes background has contributed to his nutritional requirements.⁵⁴ This included types of diet, preparation of food, and seasoning. In summary as to type and quantity of the football players' diet, it may be said that a normal, well balanced diet with an increase in calories to augment the increase in daily activity was desirable.

Vitamin C has been found beneficial during the past few years in reducing the healing time of bruises, strains, and sprains. It has reduced this time because it has helped to prevent the condition "capillary fragility".⁵⁵ It has been found to be the least stable of all vitamins. Since this vital vitamin could not be stored in the body, a daily intake has proved valuable especially during football season when bruises were a daily occurrence.

Authors varied in opinions of the importance of a pregame meal. Some felt that it was of the utmost importance while others felt it was a waste of time. Most agreed, however, that the meal should have been in the athletes stomach a minimum of three hours before the scheduled game. Dolan felt that it was impossible to expect a squad to react the same way to a meal a few

⁵⁴Ibid., p. 33

⁵⁵Carl E. Klafs and Daniel D. Arnheim, Modern Principles of Athletic Training (St. Louis: The C. V. Mosby Co., 1963), p. 121.

hours before game time because of the individual differences involved.⁵⁶

It was felt that the following pregame meal recommended by the writer has served as a reasonable guide. Coaches may desire to make adjustments as to quantity or substitutions as to content. The meal must have been in the athlete's stomach at least three hours before game time.

- 1 fruit cup
- 1 serving of lean roast beef
- 1 serving of peas
- 1 medium baked potato (1 pat of butter)
- 2 slices of bread with 1 pat of butter
- 1 dip of ice cream
- 1 beverage--milk, tea, or coffee

⁵⁶Dolan, p. 56.

CHAPTER VIII

FATIGUE AND REST

Fatigue and rest have played a vital role in the prevention of football injuries. This state of fatigue, both mental and physical, must have been considered carefully by the coach. The severe muscular exercise of football will have diminished the capacity of muscles for further activity. "This depressant action of strenuous activity is called muscular fatigue."⁵⁷ General or mental fatigue has resulted when an individual performed repetitions of dull work. Morehouse and Miller have pointed out: "His sense of timing is the first to fail, and errors and accidents begin to appear."⁵⁸ When general fatigue has become chronic, it has been commonly referred to as staleness. No boy ever should have been allowed to continue in a game or practice scrimmage when he has reached a point of muscular fatigue, for as Cathcart said, ". . . most serious injuries occur to players when they are in a state of fatigue,

⁵⁷Lawrence E. Morehouse and Augustus T. Miller, Physiology of Exercise (St. Louis: The C. V. Mosby Co., 1959), p. 231.

⁵⁸Ibid., p. 232

which causes them to lose their proper coordinated reactions and instinctive defensive abilities."⁵⁹ Alexander further stated that, ". . . the most frequent cause for fatigue in the secondary school age group is psychological."⁶⁰ The job of the coach then has become one of keeping the players rested and alert both physically and mentally. The coach should have looked for and recognized the signs of fatigue and taken measures to avoid them for it has been found better to prevent fatigue than to cure it.

Mental fatigue in football often has been referred to as staleness. Crisler considered overwork and monotony as two of the primary causes of staleness.⁶¹ Other causes have been found to be worry, lack of sleep and maladjustment.⁶² These problems may not have been associated with the squad activities. Staleness has affected the athlete by means of weight loss, insomnia, and irritability. These symptoms have been observed in practice when the player did not execute skills with the spirit, drive, and efficiency which was customary in an eager, well-rested boy.

To combat mental fatigue the coach could have used

⁵⁹Jack Cathcart, "Block that Injury," Journal of Health, Physical Education, and Recreation, XXIX (October, 1958), p. 38.

⁶⁰Alexander, p. 255.

⁶¹H. O. Crisler, Modern Football (New York: McGraw-Hill Book Co. Inc., 1949), p. 229.

⁶²Morehouse, p. 233.

various techniques and methods. It was felt by the writer that these usually boil down to:

1. Short, snappy drills where each activity was done quickly with a minimum of repetition.
2. A change of activity where drills were changed. The coach even may have profited by giving the squad an unexpected night off. This may have been done on Monday after an especially tough ball game.
3. Humor could have been added to the practice session. It has been the experience of the writer that potentially humorous situations arose during each practice. Coaches should have taken advantage of these to alleviate boredom.

Physical fatigue could have been one of the simpler problems for the coach. This was simply a problem of getting enough sleep and rest. The energy costs of physical work seldom have lead to chronic fatigue.⁶³ While the amount of sleep and rest needed has varied with the individual, Thorndike suggested that a coach should have recommended at least nine and one-half hours of sleep at night as a minimum with other periods of rest during the day.⁶⁴ In regard to the periods of rest the coach should have seen that the boys had the opportunity for one or two short rest periods during practice while observing other squad members perform. These should have been more frequent during the first practice sessions.

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⁶³Morehouse, p. 233.

⁶⁴Thorndike, p. 44.

CHAPTER IX

REPORTING INJURIES

All injuries should have been reported and adequate records should have been maintained. Reporting has been one area which often has been overlooked. Stack and Elkow gave the following reasons for a program of accident reporting:

1. It was a preventive device, indicating focal points of trouble and providing clues to danger points that needed correction in order to avoid similar accidents.
2. It was a defensive device. In the judicial proceedings that may have resulted from an accident or injury, the basic questions of negligence and liability revolved about the precise facts of the incident.
3. It was a protective device in the sense that teachers and school boards were provided with a basis for an effective defense if a suit was brought.
4. It was a constructive device in that it could be used as a guide for curriculum planning.⁶⁵

To simply recognize a need for reporting has not been enough, for if a well organized plan has not been followed, the results were haphazard and chaotic. The following steps have been listed as fundamental to the

⁶⁵Herbert J. Stack and J. Duke Elkow, Education for Safe Living (3rd ed.; Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1957), p. 150.

program by Stack and Elkow:

1. All injuries no matter how slight should have been reported. Frequently what may have seemed to be a minor injury has developed into something of major proportions.
2. A witness to the accident should have been required to sign the report form.
3. Reports should have been submitted only to the coach's proper superiors (athletic director or head coach).
4. Reports should have been prepared and submitted immediately; under ordinary circumstances a reasonable period of time should not have extended beyond twenty-four hours.
5. Advance arrangements should have been made with hospitals, clinics, or other medical dispensaries to handle emergency cases. If this was impossible, arrangements should have been made in advance for emergency service by neighborhood doctors.
6. Parents or guardians of an injured player should have been notified in case of serious injury.⁶⁶

Compiling data on a report form has not been enough.

The data must have been used. The following procedures have been suggested as essential:

1. The report should have been forwarded to the agency that has been designated in advance to receive it.
2. A routine should have been established for rectifying defects disclosed in the report whether they were matters of personnel, administration, equipment or buildings and grounds. Inaccurate and unsafe practices should have been corrected by the responsible officials concerned.

⁶⁶Ibid.

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3. Periodic summaries of the accident reports should have been made to isolate recurrent types of accidents and accident trends.⁶⁷

Most coaches now fill out forms for school insurance claims, and it was suggested by the writer that a similar report be kept on file. Klafs and Arnheim suggested that three copies were made: one to be sent to the school health office, one to be sent to the physician, and one to be retained in the athletic office.⁶⁸ The coach could have mimeographed a form which could be filled out quickly. It was felt by the writer that this form should have included the following information:

1. Name
2. Date of injury
3. Date reported
4. Nature of injury
5. Cause of injury
6. Place injury occurred
7. Time of injury
8. Game or practice
9. Type of activity
10. Could injury have been prevented?

By keeping these records the coach would have been able to compile a seasons record and see exactly when, where, how, and the type of activity causing injury. (See Appendix B)

⁶⁷Ibid,, p. 151

⁶⁸Klafs and Arnheim, p. 36.

Caution should have been taken to avoid becoming lost in a maze of statistics. It should have been remembered: "The primary function of the accident report is not to compile statistics, but to help administer schools more efficiently through learning how to avoid, or at least curtail, the frequency of future accidents."⁶⁹

⁶⁹Stack and Elkow, p. 36.

CHAPTER X

SUMMARY

To inaugurate a program of injury prevention the football coach should have been sure that the entire physical plant was free of any unnecessary hazards. All equipment should have been checked for serviceability before it was stored following the preceding season. Any equipment that was found deficient should have been repaired or if beyond repair, discarded. The coach should have suppressed the economical desire to make equipment last one more year if there was any question as to ability to serve a protective function.

In preparing the players for the season the following sequence should have been used:

1. Medical examination
2. Preseason conditioning
3. Continued conditioning throughout the season

The players should have been given a graduated series of calisthenics and exercises to build strength and endurance and to strengthen points of stress. If the coach had control of his group for the entire year, a year long program that strengthened these areas would have proved beneficial.

Good leadership was of utmost importance in injury prevention. Proper attitudes, behavior, and respect for rules and those who enforce the rules have grown from good leadership. The leadership should have come from the coaches, players, and officials.

The proper execution of the skills of football protected the player from many injuries. As has been seen, many injuries have occurred when players have made contact or fallen while not under control. The level of attainment of these skills should have been the basis for dividing the squad for contact work. Squads of adequate size should have been maintained so that sufficient rest was given to the players during practice and game situations.

Athletes should have been taught proper nutrition and diet so that they could have controlled this vital function. This was especially important on the high school level since the coach had little or no control over what the boys had eaten. It might have proven rewarding to have sent sample diets to the parents.

All players should have been encouraged to get the proper amount of sleep and rest. This not only has benefited the boy as an athlete but has made him more alert in the classroom where the primary purpose for attending school was being fulfilled.

An organized program of reporting all injuries has been a great asset to the coach in pinpointing areas of the physical plant which have been causing injuries. It also has aided the coach in keeping a record of boys who have been susceptible to injuries to a particular area of the anatomy. The program has provided the staff with an accurate report of the injury and the action taken. This has been useful in cases of liability suits.

Because of footballs very nature there will always be injuries associated with it. It has been the coaches' responsibility and duty to have eliminated as many of those as possible. Effort by the coach along the lines recommended in this paper go a long way toward this goal.

KEY
 O NO DEFECT
 V SLIGHT DEFECT
 X MARKED DEFECT

ILLINOIS HIGH SCHOOL ASSOCIATION
 PHYSICIAN'S CERTIFICATE

IF STUDENT TRANSFERS, THIS
 CARD SHOULD BE SENT TO THE
 NEW SCHOOL.

NAME _____ ADDRESS _____ BIRTH DATE _____

| REQUIRED: | YEAR | 19 | 19 | 19 | 19 | 19 | RECOMMENDED: | YEAR | 19 | 19 | 19 | 19 | 19 |
|-------------------|------|----|----|----|----|----|--------------------|------|----|----|----|----|----|
| MONTH-DAY | | | | | | | URINE: Spec. Grav. | | | | | | |
| HEIGHT | | | | | | | Albumen | | | | | | |
| WEIGHT | | | | | | | Sugar | | | | | | |
| GEN. POSTURE | | | | | | | Casts | | | | | | |
| HEART: Murmur | | | | | | | TONSILS | | | | | | |
| Rhythm | | | | | | | NOSE AND THROAT | | | | | | |
| Blood Pres. | | | | | | | GLANDS | | | | | | |
| RATE: Normal | | | | | | | EARS: Right | | | | | | |
| After 15 Hops | | | | | | | Left | | | | | | |
| After 2 Min. | | | | | | | TEETH | | | | | | |
| HERNIA | | | | | | | EYES: Right | | | | | | |
| LUNGS: Percussion | | | | | | | Left | | | | | | |
| Auscultation | | | | | | | BLOOD TESTS: | | | | | | |
| ORTHOPEDIC: Feet | | | | | | | TUBERCULIN TEST: | | | | | | |
| Spine | | | | | | | OTHER DEFECTS: | | | | | | |
| CONTAGION: | | | | | | | | | | | | | |

IN THE SPACE BELOW, INDICATE ATHLETIC ACTIVITIES IN WHICH STUDENT SHOULD NOT PARTICIPATE:

19.....:

19.....:

19.....:

19.....:

19.....:

EXAM. BY:

1ST:..... M. D.

2ND:..... M. D.

3RD:..... M. D.

4TH:..... M. D.

5TH:..... M. D.

No 4330

NOTE: COMMENT ON BACK OF CARD ON ANY DEFECT WHICH MIGHT BE HELPED THROUGH CORRECTIVE TREATMENT

APPENDIX A

The above form was considered by the writer to be adequate. It has been furnished to member schools by the Illinois High School Association.

APPENDIX B

INJURY REPORT FORM

Name _____ Age _____ Home address _____

Date of injury _____ Date reported _____

Time of injury _____

Nature of injury _____

Part of body affected _____

Cause of injury _____

Place injury occurred _____

Game or practice _____

Type of activity _____

Could injury have been prevented? _____

Signed: Coach in charge _____

Signed: Injured Player _____

Witness _____

Witness _____

Head coach or athletic
director _____

This injury report form has been suggested by the
writer.

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