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# Football injuries at the College of the Pacific 1924 to 1933

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# FOOTBALL
# INJURIES AT THE
# COLLEGE OF THE PACIFIC
# 1924 TO 1933

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By

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U.O.P.

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TO

THE 1933 VARSITY, ITS COACHES,

AND ITS MANAGERS, WHO BROUGHT GLORY

AND FAME TO THEIR COLLEGE AND

HONOR TO THEMSELVES ON

NOVEMBER 11, 1933

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CONTENTS

# INTRODUCTION

The interest in football injuries has increased with the increased enthusiasm for the sport. The coach is finding it more and more important to have all of his players in the best possible condition to withstand the terrific strain under which they must compete. The public wants to see a well played, exciting game, but the days of brutality seem to be vanishing. The average fan would rather see the best players play in the game than to have them sit on the bench in plaster casts.

This has led to a series of quite wide-spread investigations dealing with the problem during the past few seasons. The results, while not final, seem to show that a large percentage of the injuries are preventable. If this is true, further research will certainly be worthwhile.

The inspiration for this present investigation came as a result of thirteen years' experience as trainer for athletic teams. During this period most of the games were played by a small squad, frequently further reduced by injuries. It is natural, then, to endeavor to discover how to strengthen the squads by a study of the causes and treatment of these injuries.

Small schools have two very distinct disadvantages in comparison to those with larger student bodies. First, there is that ever-present necessity of playing an injured or tired player which greatly increases the hazards of the game for that individual. It is generally agreed that more injuries are received when a player is overfatigued or when he plays with an injury of which he is conscious.

Second, due to the lack of strong reserve material, there is a greater stress placed on the remaining members of the squad when one of the "first string" is removed on account of injuries. There is a very wide range in the playing ability of the small squads. Very often a team will make a good showing until substitutions are made and then there is a noticeable weakening. This results in either a doubling up of the duties for the stronger players or, what is more dangerous, a let down of the entire team. As shown later, there seems to be a direct relation between the morale and the injuries received.

This investigation has been approached from two angles. The question of permanent effects of injuries received in football has been dealt with first. Major injuries for the seasons 1924 to 1933 inclusive have been investigated and the results analyzed. The injuries received during the 1933 season for both the Varsity and Freshman squads have been investigated in detail and the type, location, and severity listed.

The work has been carried on as a separate project with no idea of proving or disproving the results of any other investigation. As the data were gathered from the one school only, the results can not be construed as final. I believe, however, that they do correspond very closely with the results of other investigations.

In order to give the reader a better understanding of the results, a brief history of football and the conditions at the College of the Pacific is given.

# CHAPTER I

## HISTORY OF PACIFIC FOOTBALL

Pacific has been a member of the Far Western Conference since this body was organized in 1925. The Conference consists, at present, of the University of Nevada, the Branch of the College of Agriculture of the University of California at Davis, the Chico State Teachers' College, the San Jose State Teachers' College, the Fresno State Teachers' College, and the College of the Pacific.

Pacific has played a football contest with at least four of these institutions each season during the past ten years, and has held in the Conference a position averaging a percentage of .450 during that period.[1]

Other non-conference teams have been played from time to time as follows: St. Mary's College of Moraga (a Conference member from 1925 to 1928), the Olympic Club of San Francisco, Whitman College of Washington, Loyola College of Los Angeles, The San Diego Marines, and St. Ignatius College (now the University of San Francisco). Of these games, about twenty-five percent were victories for Pacific. The Sacramento Junior College has been played also, with the majority of games

[1] Appendix, p.

ending in Pacific's favor. An annual game has been played with the Modesto Junior College with all games won by Pacific.

The football strength has increased in practically all of these teams. As a result of better coaching, better schedules and larger squads this has happened. The players' ability has also been increased by earlier and more improved trainingin the high schools.

The Freshman schedules have included such teams as those of the high schools at Stockton, Lodi, Sacramento, Oakdale, Manteca, and Madera. Freshman and "scrub" teams of some of the Conference schools have been played, as have the Preston School of Industry and the Mare Island Apprentices, the Freshmen winning over half of their games each season.

## CHAPTER II

## THE FOOTBALL STAFF

The coaching staff, while limited in numbers, has been developed so that it ranks very high on the coast. For the past several years it has consisted of a Head Coach, a Line Coach and a Freshman Coach. Dr. Amos Alonzo Stagg has been in charge during the past season, with his son, Paul, as Freshman Coach and Mr. Lawrence Apitz in charge of the line.

The College Physician for Men acts as the Team Physician and has been in charge of the treatment of all injuries. He has not been in attendance at practices, but has been present at home games and at most of the games played near Stockton. He has been assisted by an eye, ear, and nose specialist who is a member of the Infirmary staff. The two resident nurses have been in charge of all injuries taken to the Infirmary in the absence of the Team Physician. They have been giving massage and physiotherapy under the guidance of a graduate physiotherapist.

The position of Trainer has been entirely voluntary to date, and he has had no official connection with the team except during the 1932 season. The work has been done by an assistant in the Physical Education Department during the hours when it did not interfere with his regular college duties.

There has never been any conflict over the question of playing injured players, in cases of serious injury the Team Physician being the final authority as to whether the player played or not. If, in the Doctor's opinion, the player could be used by the aid of protective devices, the Trainer decided whether or not such protection could be given. The Trainer's word was usually taken during games as to whether the player should be removed from the game, since by his presence on the playing field he was in the best position to judge the extent of the injury.

All of the Pacific Coaches have realized that as an injured player can not give his best, he is of more value on the bench. In no case have further complications resulted from playing a badly injured player.

## CHAPTER III

## THE FOOTBALL EQUIPMENT

The main playing field is in Baxter Stadium on the Pacific Campus, a turfed field which is kept in excellent playing condition. All obstructions clear the playing area by at least fifteen feet and in most places by at least twenty feet, and the field is surrounded by a quarter-mile track which gives an additional unobstructed area. The stadium is lighted so that both games and practices are held at night as well as during the day.

In addition to this field, there is a turfed practice field outside the stadium which has been used by the Freshman squads in the fall and for Varsity practice in the spring. This field has not been kept in good condition and undoubtedly more sprained ankles and knees have resulted than were necessary. At the present time, it is being leveled and a new turf is being grown, as a result of which care it will be kept in excellent condition in the future.

Both of these fields are within a few yards of the Club House, a building which is used by the players for changing clothes and which contains three dressing rooms, a shower room, supply room, coaches' quarters, lavatory, and a Trainer's room.

The players have been furnished with the best possible personal equipment which has been purchased with the idea of

protection rather than with that of looks or cost. Not only have sanitary shirts and in-socks been furnished in recent years, but also laundry service has been installed for washable equipment, and other equipment is dry cleaned when badly soiled. This service has been greatly improved in the past year as it was found that by so doing there would be a great reduction in the number of infections.

All regular injury pads built in the suits have been kept intact for both games and practices; no attempt has ever been made to give the player speed and lightness by the removal of protective equipment. Players have been required to wear helmets during games and in practice while scrimmaging.

With the exception of a few pairs of special shoulder pads, no stock injury equipment has been kept on hand, since the regular suit has been found to give adequate protection for the uninjured player. As every injury has had its own characteristics, individual pads or supports have been prepared for each case.

The material for these has been kept on hand in adequate amounts. This material consists of sheets of fiber, aluminum, ribber and felt, pneumatic rubber doughnuts, elastic fabric bandages, adhesive plaster and gauze and muslin bandages. A stretcher has been available for all games and practices.

First aid material such as compresses, smelling salts, antiseptics, etc., have been kept on hand for minor injuries which have been given treatment in the Trainer's room after

which the player has been sent to the Infirmary.

The Trainer's room is located in the Club House within convenient access to all dressing rooms. All protective bandages have been put on in this room by the Trainer himself or directly under his supervision. Individual pads, which have been reapplied each day until there is no danger of further injury, have been made for all new injuries before the man is allowed to compete again. The Trainer's room has been used more for prevention than for treatment, although it has served the purpose of a first aid station.

Most of the treatment has been done in the West Memorial Infirmary, a building situated within about two hundred yards of both playing fields and of the Club House. Two resident nurses are in charge of this modern, well equipped building constructed in 1933, and the Team Physician is on call at all times. A large surgery room, sterilizers, laboratories, a solarium, two electric bakers, a thermolight, an ultra-violet light and hospital beds are available, and it is the plan to install at least one whirlpool bath for next season.

X-ray pictures have been taken of all suspected fractures. at a Stockton laboratory, as no machine has been available on the campus. All dental work has been done by private dentists in Stockton.

Although the College does not assume the responsibility of injuries, complete treatment has been furnished in all cases in which the injury has been a direct result of intercollegiate athletics.

## CHAPTER IV

## PERMANENT DEFECTS RESULTING FROM FOOTBALL

Forty injuries of rather a serious nature have been received by members of the football squads during the regular fall seasons in the past ten years, 1924-1933 inclusive. There have been hundreds of other injuries, but they were all of such a nature that there was no doubt at the time but that rapid and complete recovery would result. This type of rather minor injury included sprains, bruises, lacerations, abrasions, and blisters and none of these have left any lasting defects as all were of a temporary nature.

The forty serious injuries were classified as follows:

Table 1

Serious Injuries Received in Football
During the Seasons from 1924 to 1933 Inclusive.

| Injury | Number |
|---|---|
| Fractures | 31 |
| Brain concussions | 4 |
| Displaced semilunar | 2 |
| Dislocation | 1 |
| Torn tendon sheath | 1 |
| Contusion of the spine | 1 |

Each of these injuries have been listed in the index on pages 86, 87, 88, and 89. The players' present occupation if known, and the permanent results of the injury as well as the season it was received are also listed for reference purposes.

The names of these players as well as the names of all players referred to in this paper will be found together with their reference number on pages 83, 84, and 85 of the index. The prefix A indicates a former player, V indicates a player of the 1933 Varsity squad, and F indicates a player on the 1933 Freshman squad.

There have been no fatilities at Pacific which could either directly or indirectly be attributed to football. Any extremely unfortunate accidents, while rather rare in football, leave a very bad impression on the general public and are often exaggerated to such an extent that sports in general and football in particular are condemned.

Mr. Yost of the University of Michigan, has estimated that there were at least 50,000 college men playing football in the United States in the season of 1931,[1] during which time only seven deaths occured as a direct result of participation in the sport among college and university students.

Of all fatilities occuring in the United States in 1932, 63.3 percent were the result of nervous tissue injury in the form of concussions or cerebral hemorrhage.[2] There has been a large number of this type of injury, but the large percentage has been of a minor nature and the player was not kept from his regular routine. These minor cases were

[1] M. A. Stevens and W. M. Phelps, The Control of Football Injuries, 230.

[2] Ibid., 231.

watched for a short time and then the player was allowed to continue playing or was sent to the showers for the day.

Four of the cases were serious enough to be kept under observation for more than twenty-four hours. In 1.:7 player A-2 and player A-8 received head injuries severe enough to keep them in the Infirmary for several days. Player A-2 remained eight days and there was a definite amount of tissue injury. Player A-8 remained three days and the symptoms indicated slight injury. Both of these injuries were received within a ten day period and both were received during practice scrimmage.

Again in 1933, two rather serious brain injuries were received. Player V-42 received a blow from a knee over the eye and was under observation in the Infirmary. Although discharged at the end of the third day, he did not attend practice for two weeks. Player V-15 was hit while making a tackle in a Conference game and was unconscious for several minutes. The game was played away from the Pacific campus and the player was allowed to return home with the team. He was under observation for several days and did not return to regular practice for a week.

All four of these players have apparently recovered and there has been no recurrence of any unfavorable symptoms.

Fractures, while not very common in football, are the cause of a great deal of bodily discomfort and the loss of

playing time. The most common fractures at Pacific have been those of the ribs and nose (see Table 2, below). The metacarpals and lower legs came next with five and four respectively.

Table 2

Fractures Received during Ten Years of Football

| Order of Frequency | Location | Number |
|---|---|---|
| 1 | Nose | 9 |
| 1 | Ribs | 9 |
| 3 | Metacarpals | 5 |
| 4 | Lower Leg | 4 |
| 5 | Phalanges | 2 |
| 6 | Carpal | 1 |
| 6 | Zygomatic bone | 1 |

Fracture of the nose is a rather simple injury with satisfactory results in reduction in practically all cases. Good results have been received in function in all cases, although several players have had the appearance of their face somewhat damaged. Players A-7, A-10, A-14, and V-18 have been left with a somewhat irregular nose. One player, A-17, has much better function of his nose since the reduction of the fracture than he had before. This, however, was the result of a second operation which was necessary to remove old growths from a previous fracture.

Fractures ribs received from football are seldom if ever serious as the type of blow received and the structure of

the ribs results in a simple fracture, the two parts being held in good position by the intercostal muscles and the other ribs which act as splints. If, as often happens, the rib is torn from the cartilage, good position usually results and no complications set in.

Of the rib injuries received, all have been healed with the minimum amount of care and often the men have been allowed to play within a week or two by the aid of adhesive strap and fiber pads. In no case has there been any complications, in all cases the player having finished the season.

For metacarpal fractures, aluminum splints have been used and the players have been permitted to continue regular practice after about ten days or two weeks; these plays have perfect function of their hands at the present time.

Fractures of the lower leg have been more serious from the players' standpoint, for they have been forced to remain in bed for several days and out of practice for the remainder of the season. Several days of classes have been missed in each case, but there have been no bad after effects resulting from these injuries and the four men are now completely recovered. Three cases were fractures of the fibula while the other was of the bitia. All reductions were made without operations.

One finger bone and one toe bone were fractured. The

player with the fractured finger did not miss practice, but the other player was limited to light practice for some time. Both fractures healed without complications.

Player V-29 fractured the zygomatic bone which healed nicely without complications or any deformity.

The only fracture in which an operation was necessary was that of player A-1. The navicular bone of the hand was fractured an a necrosis set in. This necessitated an operation for the removal of the bone which left the wrist in a weakened condition. It is probable that the player will not have the normal use of his wrist, although for ordinary actions there will be little interference.

Two cases of displacement of the semilunar cartilage of the knee were experienced, an injury which is rather common in football and often completely incapacitates the player until it is removed by an operation. Player A-4 loosened the cartilage during the first few days of practice while practicing ball passing. The injury could not be attributed to the hazards of the game as it happened while the player was warming up and there was no body contact. As there has never been an operation, the player still has a certain amount of locking of the knee at times.

The other player, A-15, received the injury during the last game of the season. An operation was performed shortly thereafter to remove the cartilage and perfect

function was restored.

Another very common injury was the dislocation of the acromio-clavicular joint in the shoulder. Although a number of these injuries were experienced, all but one responded to the usual method of reduction without any complications and all are satisfactorily healed at present. It was necessary to perform an operation on this player, A-13, which was done with very good results; the two bones were wired together and he has experienced no inconvenience since that time.

Player A-22 ruptured the tendon sheath of the peroneus longus muscle which caused considerable trouble and loss of playing time. The tendon was pulled over the external malleolus and it was necessary to force it into position and apply constant pressure in the form of a rubber pad, but no operation was performed and the injury responded to treatment very slowly. Though the player lost a great deal of playing time he was able to make an exceptional showing as a basketball player during the next season of that sport. There is no apparent interference with the player's occupation at present after a period of seven years.

Player V-12 received an injury to the cervical region of the spine in a game during the 1923 season. Though X-ray pictures were taken, no bone injury could be discovered, but the player was dropped from the squad more as a protestation than from any disability. He had a history of a

fracture of the cervical spine which had been operated on and wired while in high school, and the chance seemed too great to risk further complications. The injury is apparently completely healed at the present time.

No attempt was made to trace the after effects of the other injuries which occured during this period. There has never been any serious complaint of any player nor any attempt to bring suit against the athletic authorities for defects resulting from participation in athletics. A few men have tried to get pre-existent disorders such as bent septums, broken teeth and other defects fixed by the College, claiming that they have been the result of football. These players merely tried to see to what extent they could impose upon the College, but when they were unsuccessful, they did not press the point.

Although there was no attempt to make a definite check, the deaths of only two students playing football at Pacific during this period have been brought to the attention of the author. These players were both killed in automobile accidents. Apparently, all other players are well and engaged in gainful occupations.

The results of ten seasons of football with an average squad of about sixty men including the varsity, freshman and reserve squads and an average of about sixty-five days of practice and games each season show the following:

1. No player has died as the direct or indirect result of a football injury.

2. No serious permanent defect has resulted to any player as a result of any injury received in football.

3. Forty serious injuries have been received, or an average of four each season, or one each season for each fifteen players.

4. Four of these, or ten percent, have noticeably changed the players' appearances. This would average one such injury to each 150 players each season.

5. Two players have a slight occupational interference, or one in each 300 players each season.

6. In all other cases, the injury has healed within a short time, leaving no permanent defect.

# CHAPTER V

## THE 1933 SQUADS

More men reported for football practice in 1933 than had for any season in recent years. A total of 74 men applied as candidates for the squads and each participated in at least two practices. Six of these men were forced to quit on account of injuries received either in practice or in games. Eleven other men did not finish the season for reasons incidental to this paper. This data is shown below.

Table 3

Number of Men Reporting to Practice

| | Varsity | Freshmen | Both |
|---|---|---|---|
| Total men playing during the season | 48 | 26 | 74 |
| Total men playing the entire season | 31 | 21 | 64 |
| Men starting at the beginning of season | 46 | 23 | 69 |
| Men starting late | 2 | 3 | 5 |
| Men finishing season | 33 | 24 | 57 |
| Men not finishing | 15 | 2 | 17 |
| Men quitting on account of injuries | 6 | 0 | 6 |

The average weight of the squads compared favorably with the weights of other college teams. The Varsity players averaged about six pounds heavier than the Freshmen.

There were two reasons for this difference. As the Varsity men averaged over two years older (see Table 6), there would be an expected increase at this particular age. Besides this, investigation shows that few of the lighter Freshmen are candidates for the Varsity the following seasons. They find that the competition is too keen and that they are eliminated by the coaches or by reason of excessive injuries.

Table 4

Average Weights of Squads in Pounds

| | Varsity | Freshmen | Both |
|---|---|---|---|
| Average weight of squad | 178 | 172 | 176 |
| Average weight of line | 183 | 181 | 182 |
| Average weight of backs | 170 | 161 | 166 |

As is usually the case on most teams, the line averaged several pounds heavier than the backfield. The light, fast men have an advantage in the backfield where speed is so necessary.

The Varsity showed a much better balanced squad than the Freshmen. There were more Varsity players while the

Freshman team was rather limited, but in spite of this, a difference of seventy-one pounds between the lightest and the heaviest men on the Varsity.

With few exceptions, the extremely light and the excessively heavy men do not show to good advantage, as was shown very well by the playing time of the heaviest and lightest men on the Freshman squad. Player F-6, the heaviest man weighing 308 pounds, played thirty minutes in games out of a possible 288 minutes. Player F-13, the lightest man, weighing but 141 pounds, played only 7 minutes. The range of weights of this squad was 167 pounds, or more than the weight of the lightest man.

Table 5

Range in Weights in Pounds

| | Varsity | Freshman | Both |
|---|---|---|---|
| Heaviest man | 220 | 308 | 308 |
| Lightest man | 149 | 141 | 141 |
| Median | 174 | 167 | 171 |
| Range | 71 | 167 | 167 |

As there is very little importance attached to the player's age, the age at the latest birthday was used. The Varsity ranged from 19 to 25 years, with an average of 21 years and 3 months, whereas the Freshmen ranged from 17 to 24 years, with an average of 19 years.

Table 6

Age of Players in Years

| | Varsity | Freshmen |
|---|---|---|
| Youngest man | 19 | 17 |
| Oldest man | 25 | 24 |
| Median | 21 | 19 |
| Range | 6 | 7 |

In order to learn the physical weaknesses and handicaps of each player, a personal interview was given to each man at the beginning of the season. At this time all operations and accidents, together with the age, height, weight, etc., were recorded. Only major operations were listed and only injuries severe enough to have caused serious trouble or an extended period of rest.

This information enabled the staff to guard against any complications which might result from allowing a player with a gross defect to further injure himself. It also enabled the staff to provide the necessary protection to weakened parts of the player's body.

There were several cases of badly sprained ankles and knees which were still weak when the season started. Straps and braces were provided and in most cases the players escaped any further injury. All fractures and other injuries were of such a nature that no further harm resulted.

All of these injuries are listed in Table 7 on the following page. It is very evident from the results collected that football is far more hazardous than all other sports put together for both the high school and college man, but it must also be remembered that all of the men interviewed were primarily football players. However, most, if not all, of these men have competed in other sports and activities for a total of more hours than they have in football.

Of the 101 injuries recorded, 68 or almost 68% were the result of football, 7 or almost 7% were from all other sports combined and 26 or less than 26% were from all other causes. In this group of men, then, a little over two thirds of all serious injuries received were the result of participation in football. This was a fairly representative group including some men who had played four years in high school and four years in college as well as men who had never played at all. A cross section of the entire student body would undoubtedly show a smaller percent of football injuries. The investigation itself does show that, among football players, the game is responsible for a large percentage of all injuries received up to and including the playing age.

Of the 68 football injuries received, 36 of 53% were received in college while the other 32 were received

Table 7

Injuries Received by the 1933 Squads Previous to the 1933 Season

| Injury | Football | Other Sports | Total for Sports | Accident | Total |
|---|---|---|---|---|---|
| Fractures: | 29 | 1 | 30 | 19 | 49 |
| Zygomatic | 1 | | 1 | | 1 |
| Skull | | | | 1 | 1 |
| Nose | 4 | 1 | 5 | 2 | 7 |
| Jaw | | | | 1 | 1 |
| Clavicle | 2 | | 2 | | 2 |
| Vertebra | 1 | | 1 | | 1 |
| Ribs | 10 | | 10 | 1 | 11 |
| Forearm | 4 | | 4 | 9 | 13 |
| Metacarpal | 4 | | 4 | 1 | 5 |
| Femur | 1 | | 1 | 1 | 2 |
| Patella | 1 | | 1 | | 1 |
| Lower leg | | | | 3 | 3 |
| Metatarsal | 1 | | 1 | | 1 |
| Dislocations: | 1 | 1 | 2 | 3 | 5 |
| Jaw | | | | 1 | 1 |
| Elbow | 1 | | 1 | 1 | 2 |
| Wrist | | 1 | 1 | | 1 |
| Toe | | | | 1 | 1 |
| Sprains: | 35 | 5 | 40 | 2 | 42 |
| Spine | 1 | | 1 | 1 | 2 |
| Shoulder | 10 | | 10 | | 10 |
| Sacro-iliac | | | | 1 | 1 |
| Knee | 99 | 2 | 11 | | 11 |
| Ankle | 15 | 3 | 18 | | 18 |
| Miscellaneous: | 3 | | 3 | 2 | 5 |
| Ribs torn from spine | | | | 1 | 1 |
| Floating kidney | | | | 1 | 1 |
| Muscle torn from insertion | 1 | | 1 | | 1 |
| Water on joint | 2 | | 2 | | 2 |
| Total | 68 | 7 | 75 | 26 | 101 |

in high school.

A study of the fractures gives a somewhat similar result. These injuries were received as follows:

| | |
|---|---|
| Fractures from all causes | 49% |
| Fractures from football | 29 or 59% |
| Fractures from other sports | 1 or 2% |
| Fractures from accidents | 19 or 39% |

This shows that over half of the fractures received by this group were the direct result of football while only about two percent were the result of all other sports.

The ratio of football injuries would have been even greater if the results of the 1933 season had been added. Several fractures, dislocations, sprains and concussions, were received in football (see Chapter VI) while one player, F-20, received a fractured metacarpal during that time while participating in another sport. One other player, F-2, was in an automobile accident, but sustained only minor injuries.

All of the injuries were received by 41 players or 55% of the squads. Further, 6 men, or but 8% of the players, received 36% of the injuries. The incident of injuries are tabulated in Tables 30, 31, 32, and 33 on pages 90 and 91 of the appendix.

From none of the football injuries, however, was

there a pronounced permanent defect. In one case of an accidental fracture, an operation was necessary and there was a noticeable weakness of the muscles, but this does not prove that there are never any such deformities. The strenuousness of the game itself would eliminate a player with such a physical handicap from being a candidate for the team, as is shown in the case of one Pacific student who did not compete the past season, due to a fractured femur received in a high school game. There is a slight amount of permanent deformity remaining.

No operation interfered with any player and there was no added protection necessary from this cause. The operations are cataloged in Table 8.

Table 8

Operations on the 1933 Squads Prior to the 1933 Season

| Operations | Number |
|---|---|
| Appendectomy | 4 |
| Herniotomy (inguinal) | 5 |
| Mastoidectomy | 2 |
| Gastrotomy | 1 |
| Removal of semilunar cartilage | 1 |
| Operation to reduce fracture | 1 |

These operations were, in the most part, old cases. The most recent was player V-17 who had his appendix removed six months before the season started. Although this player did not finish the season, he quit for other reasons than from the effects of the operation. All other men who had had operations finished the season without noticeable interference.

# CHAPTER VI

## THE 1933 INJURIES

All players were encouraged to report every injury to the Trainer immediately after each practice, and after games each player was interviewed by the Trainer or an assistant to determine the number and extent of his injuries.

Each injury was listed on a separate card, a sample of which is reproduced below.

---

INDIVIDUAL INJURY CARD

_____ Type A - B Game Practice

Name

193 _____ _____ _____

Date Hour Date complt recvry Days

Physical limitations due to injury

General physical condition at time of injury

Injury

Location R - L

How received

Treatment

These cards were kept in an active file until the injury had completely healed, where they were filed alphabetically for future reference.

As some injuries were much more serious than others, they were divided into two general divisions. The following was used as a guide for the major or class A injuries:

1. Cerebral and spinal injuries
2. Fractures
3. Dislocations
4. Injuries which interfered with practice, games, or classes
5. Injuries which later became infected
6. Injuries which required infirmary care
7. Injuries which had to be protected for practices or games

All injuries not listed above were classed as minor or class B.

This division, while not perfect, gives a very workable classification. There are some very slight injuries listed in the class A division, but in general the class A were the more serious.

A total of 628 injuries were received during the season. Of these, 168 were class A and 460 were class B. The Varsity players received 111 of the class A and 344 class B injuries. The Freshmen received 57 class A and 116 class B injuries.

The Varsity received about two-thirds of the class A and three-fourths of the class B injuries. This would be expected as there were over twice as many game hours and man-practice hours for the Varsity than there were for the Freshmen.

Although very few comparisons will be made between the Varsity and Freshman squads, the injuries are listed separately and then totaled. The class A and B injuries are listed separately as well.

In Table 9 on page 29, the injuries have been classed as to the general type. It will be seen that those injuries which can be included under the general term of contusions are the most common. This group included the bloody noses, bone bruises, bruises and muscle bruises.

Bloody noses could be classed as either a laceration or a bruise. As the bleeding stops within a very short time usually, while the bruised tissue is rather slow in healing, the injury is classed as a bruise, and, although rather frequent, is of little inconvenience.

In all cases of bone bruise, there is an amount of soft tissue injury depending upon the force of the blow and the location. As bone tissue repair is rather slow, it is usually the last to heal.

Muscle bruises usually occur where there is a large amount of soft tissue as the front of the thigh and the

Table 9

Injuries Listed as to Type

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Abraisions and lacerations | 13 | 77 | 12 | 38 | 25 | 115 | 140 |
| Blisters: | | | | | | | |
| Closed | | 19 | 5 | 5 | | 24 | 24 |
| Open | 1 | 14 | 2 | 2 | 1 | 16 | 17 |
| Bloody nose | | 2 | | 2 | | 4 | 4 |
| Bone bruise | 9 | 8 | 10 | 6 | 19 | 14 | 33 |
| Bruise | 8 | 113 | 5 | 32 | 13 | 145 | 158 |
| Muscle bruise | 8 | 50 | 3 | 8 | 11 | 58 | 69 |
| Concussion | 17 | | 2 | | 19 | | 19 |
| Dislocation | 1 | | | | 1 | | 1 |
| Fracture | 6 | | 1 | | 7 | | 8 |
| Pulled muscle | 1 | 8 | 3 | 8 | 4 | 16 | 20 |
| Sprain | 46 | 43 | 21 | 11 | 67 | 54 | 121 |
| Torn nails | | 3 | | 1 | | 4 | 4 |
| Broken teeth | | 2 | | 2 | | 4 | 4 |
| Miscel. | 1 | 1 | | | 1 | 1 | 2 |
| Total | 111 | 344 | 57 | 116 | 168 | 460 | 628 |

and the calf of the leg. The front of the thigh is undoubtedly the most commonly injured in football, regardless of the thigh pads in general use.

Bruise, as used here, includes all of those contusions in which only the more superficial tissues are involved. This latter type of injury is rarely serious and is usually forgotten by the player in two or three days at the most.

Table 10 on the following page shows the location of all forms of bruises. The legs including the feet are most susceptible to this type of injury. The most troublesome bruises were those of the muscles of the thighs and the calves of the legs, although one bad bone bruise of the foot was experienced. Only 21 were of a serious nature as compared with 121 class B.

The torso received the next largest number. The tip of the shoulder and the crest of the ilium are very commonly bruised. Both of these injuries can be largely eliminated by proper fitting pads, but there are occasionally blows which even the best of protection does not prevent.

A bad blow on the crest of the ilium usually prohibits a player from any form of practice until the tissue is fairly well healed. There is both bone and muscle tissue involved. The very location of the injury prevents much body movement without the injured muscles being stretched.

The player with a bruised shoulder can participate

Table 10

Bruises Listed as to Location

| | Varsity | | Freshman | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Head--Total | 1 | 24 | 1 | 6 | 2 | 30 | 32 |
| Ear | 1 | 2 | | | 1 | 2 | 3 |
| Face | | 10 | | 1 | | 11 | 11 |
| Nose | | 10 | | 5 | | 15 | 15 |
| Scalp | | 2 | 1 | | 1 | 2 | 3 |
| Torso--Total | 9 | 38 | 8 | 14 | 17 | 52 | 64 |
| Abdomen | 1 | 7 | | 1 | 1 | 8 | 9 |
| Back | 1 | 10 | 2 | 4 | 3 | 14 | 17 |
| Chest | 2 | 9 | 2 | 4 | 4 | 13 | 17 |
| Crest of ilium | 2 | 4 | 3 | 3 | 5 | 7 | 12 |
| Shoulder | 2 | 6 | 1 | 2 | 3 | 8 | 11 |
| Testicle | 1 | 2 | | | 1 | 2 | 3 |
| Arm--Total | 1 | 18 | 2 | 5 | 3 | 23 | 26 |
| Elbow | | 4 | 1 | 1 | 1 | 5 | 6 |
| Forearm | | 3 | | | | 3 | 3 |
| Hand | 1 | 5 | | 1 | 1 | 6 | 7 |
| Upper arm | | 6 | 1 | 3 | 1 | 9 | 10 |
| | | | | | | | 142 |
| Leg--Total | 14 | 97 | 7 | 24 | 21 | 121 | 142 |
| Ankle | 2 | 3 | | | 2 | 3 | 5 |
| Foot | 3 | 18 | 1 | 7 | 4 | 25 | 29 |
| Hip | 2 | 3 | | | 2 | 3 | 5 |
| Knee | 3 | 19 | 1 | 3 | 4 | 22 | 26 |
| Lower leg | | 32 | 3 | 10 | 3 | 42 | 45 |
| Thigh | 4 | 22 | 2 | 4 | 4 | 26 | 32 |
| Total | 25 | 177 | 18 | 49 | 43 | 226 | 269 |

in light practice, but the use of the arm for throwing and tackling is limited.

The location and structure of the nose makes it the most susceptible part of the head or face to bruises, as the sides and back of the head are very well protected by the helmet.

The arm is the least often bruised, most of the injuries occuring on the upper portion. The rules preventing the use of the extended arm on offense prevents accidents of this type. The players are forced to block with the upper arm while the forearm and hand are held close to the body in a more protected position.

Abrasions, lacerations and blisters were the second most common injury, only 14% of which were of a serious nature; none developed any amount of infection. Again the legs were the most often injured, over fifty percent of the injuries being on the knee or below.

At the first of the season, a large number of blisters were experienced, due to new shoes and tender feet. The men did not wear long stockings which left the legs exposed, resulting in a great number of cuts and scratches which could have been prevented by the use of a light stocking.

In general, it was found that there was less of this type of injury on parts of the body which were covered by

thick protective pads. Only two minor abrasions were received on the thighs, an area which is well protected.

These injuries are listed in Table 11 on the following page.

Sprains constituted 19% of all of the injuries, but ranked first in class A, accounting for 40% of all injuries of this division. Sprained ankles were most numerous of the class A group, with knees and thumbs running a close second and third.

The fingers were the most often sprained, but the injuries were very seldom of much consequence, only 20% being classed as of major importance. Undoubtedly sprains were responsible for a greater amount of loss of playing time than any other type of injury. The location of these injuries is listed in Table 12 on page 35.

No serious fractures were experienced during the 1933 season, although they have all been listed as class A injuries.

One player fractured his nose twice and then dropped from the squad. Another player fractured his nose and also dropped practice as the reduction was not very satisfactory.

The player with the fractured phalanx continued practice, but was rather handicapped, and the players with fractured ribs lost only about a week of practice each.

Table 11

Lacerations, Blisters, and Abrasions, Showing Location and Number

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Head--Total | 1 | 34 | 2 | 14 | 3 | 48 | 51 |
| Face | 1 | 14 | 1 | 6 | 2 | 20 | [illegible] |
| Lips | | 9 | | 3 | | 12 | 1[illegible] |
| Nose | | 9 | | 5 | | 14 | 14 |
| Scalp | | | 1 | | 1 | | 1 |
| Tongue | | 2 | | | | 2 | 2 |
| Torso--Total | | 2 | | 4 | | 6 | 6 |
| Arm--Total | 5 | 16 | 4 | 4 | 9 | 20 | [illegible] |
| Elbow | 3 | 5 | 2 | | 5 | 5 | 1[illegible] |
| Fingers | 2 | 6 | 1 | 1 | 3 | 7 | 1[illegible] |
| Forearm | | 3 | | 1 | | 4 | 4 |
| Hand | | 2 | 1 | 2 | 1 | 4 | 5 |
| Leg--Total | 8 | 61 | 6 | 24 | 14 | 85 | [illegible] |
| Foot | 2 | 16 | | 4 | 2 | 20 | [illegible] |
| Knee | 1 | 5 | 2 | | 3 | 5 | 8 |
| Lower leg | 4 | 32 | 4 | 15 | 8 | 47 | 45 |
| Thigh | | 1 | | 1 | | 2 | [illegible] |
| Toes | 1 | 17 | | 4 | 1 | 21 | [illegible] |
| Total | 14 | 117 | 12 | 46 | 26 | 159 | 185 |

Table 12

Listing Sprains, Showing Joints Involved

| Joint | Varsity A | Varsity B | Freshmen A | Freshmen B | Total A | Total B | Total A-B |
|---|---|---|---|---|---|---|---|
| Acromio-Clavicular | 1 | | 2 | | 3 | | 3 |
| Ankle | 13 | 7 | 6 | 2 | 19 | 9 | 28 |
| Elbow | | 3 | | | | 3 | 3 |
| Finger | 4 | 19 | 3 | 8 | 7 | 27 | 34 |
| Foot | 1 | | | | 1 | | 1 |
| Knee | 11 | 7 | 4 | | 15 | 7 | 22 |
| Sacro-iliac | 1 | | | | 1 | | 1 |
| Spine | 3 | 2 | 2 | 1 | 5 | 3 | 8 |
| Thumb | 10 | 4 | 3 | | 13 | 4 | 17 |
| Toes | 1 | | 1 | | 2 | | 2 |
| Wrist | 1 | 1 | | | 1 | 1 | 2 |
| Total | 46 | 43 | 21 | 11 | 67 | 54 | 127 |

Table 13

Giving Fractures With Location and Number

| | Varsity | Freshmen | Total |
|---|---|---|---|
| Nose | 3 | | 3 |
| Phalanx (foot) | | 1 | 1 |
| Ribs | 3 | | 3 |
| Total | 6 | 1 | 7 |

All brain concussions were listed as major injuries although some of the players continued play after only a few minutes of rest. Only two cases, discussed in Chapter IV, were at all serious.

Table 14

Giving the Number of Brain Concussions and Location on the Head of the Blow

| | Varsity | Freshmen | Total |
|---|---|---|---|
| Back | 13 | 2 | 15 |
| Forehead | 2 | | 2 |
| Jaw | 2 | | 2 |
| Total | 17 | 2 | 19 |

Only one player experienced a dislocation, this being of the acromio-clavicular joint. The reduction was very satisfactory and the injury healed in a short time.

Besides these injuries, nineteen cases of severe muscle fatigue were experienced, which were distinct from muscle bruises and were treated by rest, heat, and massage. Thirteen cases were received by the Varsity and six by the Freshmen.

The type of tissue involved is given in Table 1 . As would be expected, the more superficial tissue is injured most often. It should be remembered also, that in

all cases of contusion, the superficial tissue is injured whenever the deeper tissue is. The table gives only the tissue most seriously involved.

Table 15

Showing Tissue Most Seriously Involved by Injury

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Bone | 13 | 8 | 11 | 6 | 24 | 14 | 38 |
| Cartilage | 2 | 4 | | 4 | 2 | 8 | 10 |
| Ligament | 47 | 43 | 21 | 11 | 68 | 54 | 122 |
| Muscle | 9 | 58 | 6 | 16 | 15 | 74 | 89 |
| Nervous | 17 | | 2 | | 19 | | 19 |
| Subcutaneous | 8 | 113 | 5 | 32 | 13 | 145 | 158 |
| Teeth | | 2 | | 2 | | 4 | 4 |
| Tendon | 1 | 1 | | 1 | 1 | 2 | 3 |
| Skin | 14 | 110 | 12 | 45 | 26 | 159 | 185 |
| Total | 111 | 344 | 57 | 116 | 168 | 460 | 628 |

Injuries are much more frequent during games than during practices. The total number of man hours of practices was 3946 as compared with 113 man hours of actual game competition for the Varsity, and for the Freshmen practices a total of 1878 man hours with only 52.8 man hours of game play. The Varsity received 57 class A and and 145 class B injuries in practice and 54 class A and

199 class B injuries in games. The Freshmen received 38 class A and 60 class B injuries in practice and 19 class A and 56 class B injuries in games. These injuries are tabulated in Table 16.

Table 16

Giving Number of Injuries Received in Practice and Games

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Practice injuries | 57 | 145 | 38 | 60 | 95 | 205 | 300 |
| Game injuries | 54 | 199 | 19 | 56 | 73 | 255 | 328 |

This gives an average of 2.01 injuries for each man hour during games and .051 injuries for each man hour of practice. Games then were 39.4 times as hazardous as practice. This seemingly great difference can be explained by the fact that a large percentage of the practice time was taken up by practicing fundamentals and plays without scrimmage.

As both squads were rather limited as to numbers, scrimmate in practice was cut down to the absolute minimum. This was done even at the expense of the risk of greater game injuries.

The daily attendance for practice was kept during

the season. These results, which are listed as man practice hours, were tabulated by the days of the week and are shown in Table 17. Each practice period was approximately two clock hours in length.

Table 17

Practice Periods Listed as to the Days of the Week; Each Period Consisted of Approximately Two Hours

| | Varsity | Freshmen | Total |
|---|---|---|---|
| Monday | 465 | 198 | 663 |
| Tuesday | 457 | 202 | 659 |
| Wednesday | 428 | 208 | 636 |
| Thursday | 356 | 209 | 565 |
| Friday | 196 | 86 | 282 |
| Saturday | 71 | 36 | 107 |
| Total | 1973 | 939 | 2912 |

The injuries received in practice were also listed as to the days they occurred, and are tabulated in Table 18 on the following page.

By dividing the number of man practice periods for each day by the number of injuries received on that day, the ratio between the injuries and the number of hours of practice was obtained. These results are shown in Table 19.

Table 18

Practice Injuries Listed as to Days

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Monday | 14 | 32 | 6 | 16 | 20 | 48 | 68 |
| Tuesday | 12 | 29 | 15 | 6 | 27 | 35 | 62 |
| Wednesday | 13 | 33 | 6 | 12 | 19 | 45 | 64 |
| Thursday | 9 | 29 | 6 | 14 | 15 | 43 | 58 |
| Friday | 4 | 8 | 5 | 12 | 9 | 20 | 29 |
| Saturday | 5 | 14 | | | 5 | 14 | 19 |
| Total | 57 | 145 | 38 | 60 | 95 | 205 | 300 |

Table 19

Number of Man Practice Hours for each Injury

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Monday | 33.2 | 14.5 | 33.0 | 12.2 | 33.1 | 13.8 | 9.72 |
| Tuesday | 38.1 | 15.8 | 13.5 | 33.7 | 24.4 | 17.1 | 10.62 |
| Wednesday | 32.9 | 13.0 | 34.7 | 17.3 | 33.5 | 14.1 | 9.93 |
| Thursday | 39.5 | 12.3 | 34.8 | 14.9 | 37.7 | 13.1 | 9.74 |
| Friday | 49.0 | 24.5 | 17.2 | 7.1 | 31.3 | 14.1 | 9.72 |
| Saturday | 14.2 | 5.07 | | | 21.4 | 7.64 | 5.63 |
| Total | 34.6 | 13.6 | 24.7 | 15.6 | 30.6 | 14.3 | 9.70 |

These results represent the number of man practice hours for each injury received on the different days.

Thus, in the Saturday practices, the injuries were much more frequent than other days. There were only two practices on Saturday, however, both being held on the same day during the first week of the season. The Saturday results were not reliable for this reason.

There seems to be little difference in the frequency of the injuries on the other days, being only about a ten percent difference between the highest and lowest days. The total injuries were less frequent on Tuesdays although more class A injuries were received on that day.

All of the major injuries received before the 1933 season were listed as to the quarter in which they were received. The results are as follows:

| | | | |
|---|---|---|---|
| 1st | quarter | -- | 13 injuries |
| 2nd | " | -- | 14 " |
| 3rd | " | -- | 8 " |
| 4th | " | -- | 3 " |

It will be seen that about one third of the injuries were received during the first quarter, one third during the second quarter, and the other third during the last half of the season.

The practice injuries for the 1933 season were divided in a similar manner as follows:

| | Varsity | Freshmen | Total |
|---|---|---|---|
| 1st quarter | 114 | 40 | 154 |
| 2nd " | 36 | 25 | 61 |
| 3rd " | 28 | 17 | 45 |
| 4th " | 24 | 16 | 40 |

These two results conform in general with the current opinion on the subject. It is generally agreed among

coaches and trainers that the large majority of injuries are received near the first of the season. It seems that the players are not in as good condition then and they need some time for conditioning and learning how to take the blows without injury.

This is most certainly true of such injuries as blisters, which are particularly noticeable during the first week or two of practice. Of the 31 blisters received by the Varsity, 24 or 77% were received during the first nine practices.

The injuries received in games during the 1933 season did not verify this, however. Sixteen games were played by the two squads and a total of 328 injuries were received. As no equal division of the season could be made, the injuries have been listed in the order that the games were played; the scores of the games have been included to give some idea as to the strength of the opponent. This data will be found in Tables 20 and 21 on the following page.

The strength and determination of the opposition and the general morale and condition of the squad seemed to determine to a great extent the number of injuries received. In those games which were played at the peak of the season, fewer injuries were received but after that the injuries increased in number again.

In the first Varsity game against the Oregon Normal,

Table 20

Showing Injuries Received in each Game and Score of Game

VARSITY

| Opponent and Score | | | | Injuries | | |
|---|---|---|---|---|---|---|
| | | | | A | B | Total |
| Pacific | 0 - Oregon Normal | 12 | | 3 | 15 | 18 |
| " | 3 - California | | | 1 | 9 | 10 |
| | Ramblers | 0 | | | | |
| " | 26 - Modesto Junior | 0 | | 4 | 13 | 17 |
| " | 6 - San Jose State | 12 | | 10 | 14 | 24 |
| " | 0 - Nevada | 7 | | 5 | 20 | 25 |
| " | 14 - Chico State | 0 | | 3 | 10 | 13 |
| " | 14 - Cal. Aggies | 7 | | 6 | 21 | 27 |
| " | 0 - St. Mary's | 7 | | 5 | 39 | 44 |
| " | 7 - Loyola | 14 | | 11 | 37 | 48 |
| " | 12 - Fresno State | 0 | | 6 | 18 | 24 |

Table 21

Showing Injuries Received in each Game and Score of Game

FRESHMEN

| Opponent and Score | | | | Injuries | | |
|---|---|---|---|---|---|---|
| | | | | A | B | Total |
| | | | | 3 | 3 | 6 |
| Pacific | 19 - Preston | 0 | | 7 | 13 | 20 |
| " | 0 - San Jose Frosh | 6 | | 2 | 13 | 15 |
| " | 7 - Nevada Frosh | 13 | | 0 | 9 | 9 |
| " | 0 - Mare Island | 0 | | 5 | 10 | 15 |
| " | 32 - Cal Aggie Frosh | 0 | | 2 | 8 | 10 |
| " | 36 - Cal Aggie Frosh | 0 | | | | |

the team had had a hard trip and was disorganized, as a new system was being used under a new coach. The opposition was not so strong as the score indicates and both scores were made by long runs. A number of injuries were received, but very few serious ones.

The following week, an entirely reorganized team won from the strong California Ramblers, a team which had large shifty men, many of whom played on the California Varsity later in the season. All of the Pacific men were in good condition and the full strength of the team was present. The fewest game injuries were received in this game, although it was only the second of the season.

Modesto Junior College was the weakest team on the schedule, but four rather severe injuries, including one fracture, were received. The reason for this was that a large number of substitutes were used and also that the Pacific team was not "fired up"; as Modesto had never won from Pacific, the players naturally did not take the game as seriously as they did the other games.

The San Jose game was a good example of a team playing under high emotional stress. The San Jose College dedicated a beautiful new stadium the day Pacific met their team, and the result was disastrous both as to injuries and as to the score for the visitors. The San Jose team played inspired ball, and although the Pacific team played hard, they were no match for them on that day. Ten

class A injuries were received, including a spine injury which kept the player (V-12) out for the rest of the season, and a fairly serious brain concussion (player V-15).

In the Nevada, Chico and Aggie games, the teams were fairly evenly matched, Pacific having a slight advantage regardless of the score.

The St. Mary's team was the hardest opposition that Pacific faced during the season. But for this game the men were "fired up" and there was no stopping them. As the St. Mary's team had large, rough players, there were many minor injuries, but the major injuries were conspicuously few. It was reported that the St. Mary's men were more seriously injured than those of Pacific, though the St. Mary's team had been often referred to as the coming national champions at the first of the season.

But the peak of the season had been reached and the Loyola game at Los Angeles showed the result of a let down. The men were still in good shape and had had two weeks' rest, but the difference in playing was noticeable. Although the Pacific team was not outplayed as the score would indicate, still the men were injured so seriously early in the first period that the team was noticeably weakened. There is no doubt that this game was lost on account of injuries.

Six days later the team played Fresno State and suffered rather heavily from injuries; the fact that some

of the better players could not participate due to the injuries received at Loyola evidently was a factor. Had the Fresno team shown more life, the injuries no doubt would have increased.

The Freshmen game injuries were very similar. In the San Jose game similar conditions were present, as it was a preliminary to the dedication game. One player in this game (F-24) received an injury which was not healed by the end of the season. In those games in which there was little opposition as indicated by the score, the injuries were generally fewer.

As no definite results could be obtained from just two squads in one season, little attempt was made to learn the effects of night ball on the incident of injuries. Those received are tabulated below for reference purposes. These results, however, show little difference between the day and night games.

Table 22

Injuries Received in Day and Night Games

| | Night | Day |
|---|---|---|
| Number of games | 6 | 10 |
| Injuries received | | |
| Class A | 24 | 49 |
| Class B | 98 | 157 |
| Total | 122 | 206 |
| Injuries per game | | |
| Class A | 4.0 | 4.9 |
| Class B | 16.3 | 15.7 |
| Total | 20.3 | 20.6 |

A temperature chart of all games and practices together with the climatic conditions such as rain and wind were kept. As the season was free from heavy rains and winds, no results could be tabulated. The temperature also ranged so evenly that conditions were unfavorable for any comparison.

The climatic conditions do undoubtedly have a definite bearing on the frequency of injuries. It has been the author's experience that more serious injuries were received on cold, windy and cold, rainy days, and excessive heat also tends to increase the number of injuries.

Ten games were played by the Varsity, each game consisting of one hour playing time. This gives 110 man hours of playing time for the season, as there are eleven men playing on the squad at one time. The Freshmen played six games of 48 minutes each, for a total of 52.8 man hours.

These times together with the man hours of each position in the line are listed below in Table 23.

Table 23

Showing the Number of Man Hours Played by the Squad and the Different Positions

| | Varsity | Freshmen | Total |
|---|---|---|---|
| Squad | 110 | 52.8 | 162.8 |
| Backfield | 40 | 19.2 | 59.2 |

(Continued on next page)

Table 23 (Continued)

| | Varsity | Freshmen | Total |
|---|---|---|---|
| Line | 70 | 33.6 | 103.6 |
| Ends | 20 | 9.6 | 29.6 |
| Tackles | 20 | 9.6 | 29.6 |
| Guards | 20 | 9.6 | 29.6 |
| Center | 10 | 4.8 | 14.8 |

As the backfield men changed positions both on offense and defense, depending upon the particular play and the particular players playing at the time, the backfield positions were treated as a whole.

The injuries were also listed as to the number for the entire squad and for the positions. The results are shown in Table 24.

Table 24

Showing the Number of Game Injuries for Each Position

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Squad | 54 | 199 | 19 | 56 | 73 | 255 | 328 |
| Backfield | 17 | 65 | 9 | 26 | 26 | 91 | 117 |
| Line | 37 | 134 | 10 | 30 | 47 | 164 | 211 |
| Ends | 17 | 41 | 2 | 7 | 19 | 48 | 67 |
| Tackles | 8 | 36 | 4 | 5 | 12 | 41 | 53 |
| Guards | 9 | 26 | 4 | 10 | 13 | 36 | 49 |
| Center | 3 | 31 | 0 | 8 | 3 | 39 | 42 |

The number of injuries received were then divided by the man hours for both the squad and for the positions on the squad. These results gave the number of injuries received for each man hour played for the entire squad and for the different positions. The results are shown in Table 25.

Table 25

Showing Number of Injuries Received During Games for each Man Hour Played

| | Varsity | | Freshmen | | Total | | Total |
|---|---|---|---|---|---|---|---|
| | A | B | A | B | A | B | A-B |
| Squad | .49 | 1.80 | .36 | 1.06 | .44 | 1.56 | 2.01 |
| Backfield | .42 | 1.62 | .46 | 1.35 | .44 | 1.53 | 1.97 |
| Line | .52 | 1.91 | .29 | .89 | .45 | 1.58 | 2.03 |
| Ends | .85 | 2.05 | .20 | .73 | .64 | 1.62 | 2.26 |
| Tackles | .40 | 1.80 | .41 | .52 | .40 | 1.36 | 1.78 |
| Guards | .45 | 1.30 | .41 | 1.04 | .46 | 1.38 | 1.65 |
| Center | .30 | 3.10 | .00 | 1.66 | .20 | 2.62 | 2.97 |

As can be seen, the results are in no way conclusive. For the Varsity, the line received the greatest number of both class A and B injuries, while of the Freshman team, the backfield received more than the line. In the line, the Varsity ends received a large

number of injuries while the Freshmen ends received very few. Of class A injuries, the center received the fewest number, but also received the greatest number of class B injuries.

An extended investigation of the injuries received over several seasons or of several teams during the same season would be necessary to arrive at any valuable conclusions.

Of 28 major injuries received at Pacific during the previous nine years, 12 were received in the backfield and 16 in the line. Not all of these injuries were received in games, however. As there are seven linemen and four backfield men playing during the game, this would make positions nearly equal as to the injury hazard.

Twenty-seven men were removed from all games during the season, directly as a result of injuries, nineteen of these cases occurring during Varsity games and others during Freshmen games.

Of these injuries, 18, or two-thirds, were received on offense and the other 9 while the men were playing on defense. It would seem then that there is more danger to the offensive team than there is to the defensive team. As the other injuries were not reported until after the game or after the player had been removed for other reasons from the game, it was not possible to learn how these had been received.

Of the offensive injuries, 4 were received while the player was carrying the ball. Thus nine percent of the players on the team received 22½% of the injuries on offense and this man was the ball carrier. It would seem then that the ball carrier is in the most dangerous offensive position.

On defense, men making the tackle received almost one-half of the injuries. As only three or four men are concerned in making the tackle, this seems to be the most dangerous part of defensive play.

There seems to be a great deal of argument against the kick-off as to its being the most dangerous play of the game. Two of the injuries just mentioned were received on the kick-off. In one case the player received a fractured rib as he was returning the ball, and in the other, he received a sprained ankle while going down with the ball. These two injuries do not give a fair representation on this particular play, however.

This data will be found in Table 26.

Table 26
Injuries Received Which Forced Player from the Game

| | OFFENSE | | | |
|---|---|---|---|---|
| | Running Interference | Carrying Ball | Charging | Total |
| Sprains | 1 | 1 | 4 | 6 |
| Bruises | 1 | 1 | 3 | 5 |

(Continued on next page)

Table 26 (Continued)

OFFENSE

| | Running Interference | Carrying Ball | Charging | Total |
|---|---|---|---|---|
| Concussions | 4 | 1 | 1 | 5 |
| Fractures | 1 | 1 | | 2 |
| Total | 6 | 4 | 8 | 18 |

DEFENSE

| | Taking out Interference | Tackling | Charging | Total |
|---|---|---|---|---|
| Sprains | 1 | 2 | 4 | 7 |
| Concussions | | 2 | | 2 |
| Total | 1 | 4 | 4 | 9 |

All injuries were considered as cured when there was no further visual evidence, no limitation of function, and no pain. As would be expected, the average length in days was greater for the major injuries than it was for the minor. The major injuries lasted from a few hours as in the case of slight concussions to 59 days in the case of one Freshman who had the skin loosened from the deeper tissue over the shin. The minor injuries lasted from a day to eighteen days for a bruised metacarpal bone.

The extent of injuries are listed in Table 27 on the following page.

A total of 137 practice periods was lost directly as a result of injuries by the different members of the squad. In addition to this there were 115 periods of

Table 27

Showing Average Length of Days for Injuries

| | Number of Injuries | Total Days Players Injured | Average Days of Each Injury |
|---|---|---|---|
| Varsity | | | |
| Class A | 111 | 1539 | 13.87 |
| Class B | 344 | 1701 | 4.94 |
| Freshmen | | | |
| Class A | 57 | 807 | 14.16 |
| Class B | 116 | 568 | 4.90 |
| Total | | | |
| Class A | 168 | 2346 | 13.97 |
| Class B | 460 | 2269 | 4.93 |

limited practice. This would average close to two days each season for the entire squad to be absent and an additional one and one-half periods of limited practice.

There averaged a total of 35 games in which one man could not play on account of injuries. This would average more than two men for each game played that could not compete for that reason. It would also be found that there were other men on the bench, on account of injuries, which handicapped them to such an extent that the coach would not use them.

Only ten and one-half days of school were missed on account of injuries by all players, and of these, six were spent in the infirmary. The data for this

material is given in Table 28.

Table 28

Time Lost Due to Injuries

| | Varsity | Freshmen | Entire Squad |
|---|---|---|---|
| Practice Periods | | | |
| No Practice | 112 | 25 | 137 |
| Limited Practice | 85 | 30 | 115 |
| Games | 31 | 5 | 35 |
| Classes (full days) | 10½ | 0 | 10½ |
| Infirmary days | 6 | 0 | 6 |

Of this entire group of injuries, all have responded to treatment in a satisfactory manner except the case of one broken nose. This player has a slight deformity, but fairly good function. It is possible that this will be fixed by the College in the near future. A large number of the other players played on the basketball squads. A few of the injuries were not healed by the time this season started, but they were in such a condition that little time was lost from the sport.

A total of eleven accidents was experienced by the players during the season, and thirty cases of sickness and infection. An automobile accident and a fractured hand were responsible for two Freshmen being forced to quit two weeks before the Varsity season was finished.

Fourteen cases of infection resulted, four being "gym itch" infections and the other ten boils. All of the boils were confined to three men and these were contracted outside of the training quarters.

All of these injuries and sicknesses are listed below in Table 29.

Table 29

Injuries and Sicknesses Received by Squads During the Season

| | Varsity | Freshmen | Total |
|---|---|---|---|
| Sicknesses | | | |
| Digestive disorders | 4 | 2 | 6 |
| Influenza | 9 | 2 | 11 |
| Boils | 9 | 1 | 10 |
| Gym itch | 2 | 2 | 2 |
| Accidents | | | |
| Fractures | | 1 | 1 |
| Body bruises | | 1 | 1 |
| Burns | 1 | 1 | 2 |
| Lacerations | 1 | 6 | 7 |

# CHAPTER VII

## THE TREATMENT OF ATHLETIC INJURIES

No attempt will be made here to give a complete discussion on the treatment of football injuries. Several good books are now on the market which deal with the subject and which have been written by men who are specialists in the field. The Team Physician has direct charge of the treatment of injuries at Pacific and he employs those methods which are recognized as standard by the medical profession.

However, conditions on an athletic team are somewhat unique. It is often found advisable and necessary to obtain very rapid recovery and to allow a certain amount of activity before the injuries are completely healed. To allow the player complete rest when he could be an active member of the squad is an impossibility on a football team.

This discussion will be limited, then, to those practices which make it possible for a player with a marked injury to continue practice without further harm to himself. This work is divided into two general fields, that of the treatment of the injury and that of protection against further injury.

There has been as great an advancement in the

knowledge of the training staff as there has been in the general medical profession. The crude, brutal methods of treatment practiced by the coach of a few years ago have passed and in its stead, modern equipment, used by experienced men, is now employed.

Many of the treatments are just the reverse of the old methods. An example is the treatment of the so-called "charley horse" or bruised muscle. Formerly this was massaged vigorously until the player was persuaded that it was more comfortable to play with the injury than to continue the treatment. Now the "charley horse" is never handled roughly and any pain is an indication of improper treatment. Needless to say, there is very little playing time lost now on account of this injury.

Brain concussions are received in all degrees of severity. With these concussions, there can also be a fracture of the skull, but this condition is very rare in football.

Players with severe brain concussion are removed to the infirmary and placed under observation until all symptoms have disappeared. The usual condition is a slight amount of amnesia with dizziness caused by a direct blow on the head. If the player is not completely unconscious, the extent of the injury can be determined by watching his reactions. Ammonia capsules will often furnish enough stimulus to permit him to continue

playing. If the blow has produced complete unconsciousness, the player is always removed for observation, and treatment for shock is invariably given in severe cases.

There is only one recognized treatment for fractures and that is reduction and complete rigidity of the broken fragments, but the complete disuse of the fractured member is not always necessary.

The use of the X-ray is to be advised both before and after the reduction. Another picture taken a few days later will show if the repair processes have started and if the union is firm enough for practice.

For fractures of the metacarpals, molded aluminum splints which protect the entire hand are used; these are well padded to protect the other players against injury as well as the injured hand. These splints are usually used until the end of the season so there can be no danger of further injury. They are replaced every day before practice and the padding is changed when it becomes soiled.

For fractured ribs, an adhesive bandage is used on the side of the fracture until good union takes place. This bandage is put on tight enough to prevent any movement at the point of the fracture and by leaving the uninjured side untaped, the breathing is not interfered with. Adhesive tape is to be recommended in cases where the fracture is in a favorable position rather than the

muslin bandage which entirely circles the chest. It is sometimes necessary to extend the ends of the tape past the mid-line in order to give more rigidity near the rib attachments. Usually the tap can be placed to get good results and still permit comfortable breathing.

It sometimes happens that the patient is more comfortable with no bandage at all, in which case he is kept quiet until good union takes place. These cases are rather rare.

Although it is not to be too strongly recommended, the players may often return to limited practice after a week or ten days without serious danger. A few of our players have played continuously, but there was undoubtedly a greater loss of effective play than if even a short rest had been taken to get a good union.

When the player starts practice again, the strapping is continued and a protecting pad placed over the injury. This pad can be made of fiber or aluminum and should be large enough to extend over at least two ribs on each side of the injured rib and several inches past each side of the injury. It is padded on the under side to keep the pressure off the injured rib completely, using the other ribs as a foundation. An oval hole or a groove serves this purpose very satisfactorily. This pad is shown in illustration 1.

a b

Illustration 1

The method of strapping the chest with adhesive tape for a fractured rib, showing the under side of the protecting pad (a) and the protecting pad in position (b). The X indicated the point of the fracture. The skin has been painted with a weak solution of tincture of benzoin compound.

Fractured noses are reported to the nose specialist at once and treatment is left entirely in his hands. After about two weeks, the player is allowed to continue practice and a nose guard is provided.

There are two general types of these guards on the market. One is an independent unit and is held in place by a band around the head at the top and by an insert held in the mouth at the lower end. This type interferes with the breathing somewhat and is very apt to get out of position. The other type is built in the helmet. As the

helmet can move about on the head, the guard is often in the wrong place and the protective feature then becomes a serious hazard.

Men can play with recently fractured fingers or thumbs provided they are well splinted. The splint should be well anchored to the hand to prevent sprains, and should be strengthened further by strapping all of the fingers together. The use of the hand is rather limited, but there is little danger of further injury.

Practically all other fractures must be allowed to heal completely before the player is permitted to practice. Even chip fractures usually occur at the point of muscular attachments and must be immobilized until there is complete union. This usually takes at least six weeks.

Protective pads are used over recent fractures when there is any amount of callous which might be irritated. The principle used is to keep any pressure off of the tender spot and distribute it elsewhere. Bulky pads are guarded against, as they are hard to keep in place and often are the first to be hit.

Dislocations, while not usually as serious as fractures, are responsible for a fairly large percentage of the loss of playing time. The general treatment for them consists of reduction, support without movement for a few days, and then limited movement.

The use of the X-ray is to be advised in all cases when the expense is not prohibitive. By this procedure, the danger of fracture, particularly the so-called chip fracture, without its presence being known, is eliminated. The use of heat in the form of infra-red rays and the hot water bath is very valuable during the repair period.

The more serious dislocations such as those of the shoulder joint, the knee, the elbow and the hip usually incapacitate the player for the balance of the season. The reduction of these injuries is rather difficult and should be attempted only by an experienced operator. None of these dislocations has occurred at Pacific recently.

The acromio-clavicular joint is very often dislocated but is fairly easily reduced. In this injury, the clavicle is pushed upward and the distal end is very prominent. If reduction is not complete, the shoulder becomes very painful during practice due to the pressure on the raised tissue while tackling.

The clavicle is forced into position by an adhesive bandage encircling the length of the upper arm so that it puts pressure downward on the clavicle and upward on the elbow. The forearm is then supported by a sling around the uninjured shoulder.

After the player has been declared able to play by the physician, the shoulder is strapped with adhesive to

hold the clavicle down in position. Undesirable movements of the arm are limited by the use of tape over the tip of the shoulder. A pad is used to keep the pressure of the shoulder pad off of the injury, though three pneumatic rubber doughnuts can be used very well. These are strapped one in front, one in back of the scapula, and the other at the tip of the shoulder over the head of the humerus. A well constructed shoulder pad is then used over this extra pad.

Dislocations of the fingers are easily diagnosed and reduced. The X-ray is to be recommended in these injuries to be certain there is no bone injury. In most of these cases the player can continue practice in a day or two by the aid of an adequate splint. Sheet aluminum is recommended as it can be molded into the proper shape, it is light, and will not splinter nor break. It should extend around the joint to give protection to the sides and should extend to the finger tips. If it is a metacarpa-phalangeal injury, the splint must go to the heel of the hand the same as in a fracture. These grooved splints are taped on before each practice.

Sprained joints are very similar to dislocations except that the bones are not displaced and there is no reduction necessary. However, similar tissue is injured and the injuries are received from the same cause. The treatment is very similar to that for dislocations. Complete

rest is often necessary but usually there is not such an extended destruction of tissue in the sprain.

Sprained ankles are very common and some schools take extensive measures for their prevention. Many of the larger schools protect the ankles of the better players by the use of adhesive straps for all practices as well as for all games. Other trainers believe that this practice weakens the ankles and they protect only those ankles which have already been sprained.

This latter theory does not seem to be entirely correct however. It is undoubtedly true that any joint which is protected from all movement will be weakened in time. But in football there is a great stress placed on the ankles and the tape does not entirely eliminate this stress and strain to which they are subject. The tape, then, only prevents the over-stress and, if properly applied, allows full use of the ankle.

The "figure of eight" muslin ankle wrap, used at Pacific for practice and applied by the players themselves, can also be used to good advantage. For games, all of the more important players have their ankles strapped with adhesive tape, and although some ankles are sprained with this support, the sprains are less severe and there are fewer of them than without it.

As most ankles are sprained with the foot going inward and being extended at the same time, the greatest

support is given to the external side. Three straps of one and one-half inch tape are used, making a stirrup for the foot and three straps are put on horizontally to give added support to the foot. The vertical straps cross over the internal malleolus and fan out over the outer ankle. The straps are put on starting on the inside so as to hold the ankle in a slightly everted position. This gives strength to the external ligaments of the ankle and allows flexion and extension without lateral movement. The taping is done at least three hours before the game in order to let the tape set properly, and, just before the game, additional straps are put partly around the lower leg in order to prevent their

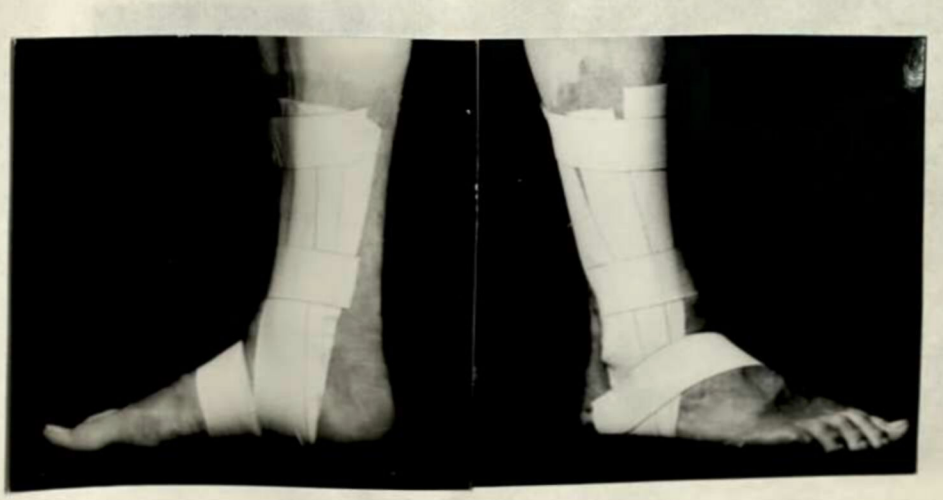

Illustration 2
Adhesive ankle support used on uninjured ankles for games showing both sides of the foot.

being peeled down during a tackle. If socks are used, this procedure is not necessary. It will be noticed that the tape does not entirely circle the ankle or foot and the circulation is not interfered with.

When an ankle is sprained, it is taped immediately to prevent as much swelling as possible. After the danger of swelling is past, heat is applied by the use of foot-baths or the electric baker. If the injury is not too serious, the ankle is again taped and the player is allowed to use his foot; moreover he is allowed to practice as soon as possible, the ankle being kept taped at all times.

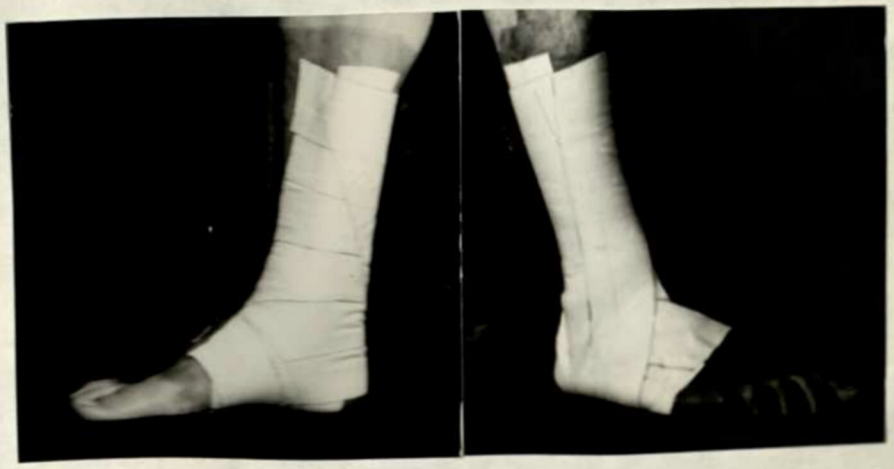

Illustration 3
Adhesive ankle support used on sprained ankles

A strip of tape in the form of a stirrup running well up the leg is first applied; then the foot is covered from the sole well up the leg with horizontal straps which are left open in front. Next, three straps are placed, starting from well under the foot and going up fan shaped, the first around the back of the leg and the third well up the front. These three straps hold the outside of the foot up to prevent a recurrence of the sprain. If, as rarely happens, the ankle is sprained on the inside, the procedure is reversed.

This tape was developed from the usual basket weave by the author, its main advantages being that it gives a maximum support with the least amount of time spent in applying it. By leaving the ends of the first strap exposed, the entire bandage can be removed quickly by using them as handles. Two inch tape is used exclusively and with a little practice, it can be put on smoothly. This tape is used for all games and practices as long as there is any weakness.

Chip and Potts fractures are very commonly associated with sprained ankles and the use of the X-ray is strongly recommended, especially if the injury does not respond rapidly to treatment.

Sprained knees are much more serious than ankles, and the player is often unable to compete for the rest of the season. The internal lateral ligaments are most

commonly torn, resulting from a blow from the outside of the knee when it is slightly flexed. If no other complications arise, such as floating cartilages, the knee can often be supported on the inside, and the player allowed to resume limited practice.

Illustration 4
Adhesive tape support for sprained knee

This support can be given by several methods. The use of tape in the hands of an expert is sometimes very satisfactory, but its use is rather limited. The tape must be put on in such a way that it will prevent a lateral movement without preventing a certain amount of flexion and extension. This means that the tape must cross near the pivot point of the knee. As adhesive

tape is not elastic, the tape tends to pull loose and the support is then lost.

Tape does have the advantage of limiting undesired movement when properly applied; this can be done by crossing the adhesive a little to the front of the knee to prevent flexion and a little to the rear to prevent extension. The knee should be flexed to the proper point before the tape is applied.

The use of the "Ace" or elastic bandage is very popular for this injury. The bandage is wrapped around the knee in figure of eight fashion with the crossing over the part to be supported. The disadvantages are that the elasticity of the bandage prevents a firm pull on the weak side and that it cuts off circulation to a certain extent, but if it is put on too loosely, it will slide down and the support is lost.

There are several types of steel knee braces on the market, the most satisfactory being a combination of an elastic sleeve and steel bars. These steel inserts are on each side and are hinged at the pivot point of the knee. They must be long enough and the sleeve tight enough to give a firm hold on the two parts of the leg. By the use of "stops", flexion and extension can be limited at any point desired.

The sacro-iliac joint can be supported in case of a

sprain by the use of adhesive straps across the lower back, but the support is very slight and of little use if the injury is severe. The principle is to bind the two pelvic bones together in the back, while the tape is drawn tightly across the back and anchored well over the pelvic bones.

The treatment for sprained acromio-clavicular joints is similar to that of the dislocation except that the reduction is not necessary.

Illustration 5
Adhesive bandage used to prevent complete extension of the elbow

Sprained elbows are often encountered. In most cases the elbow has been over-extended and there is pain as the arm is straightened. This does not handicap the

player greatly unless he happens to use the arm for passing. The extension motion can be limited by the use of one-half inch adhesive straps crossing in front of the elbow. These extend well up the arm and are put on while the arm is in a slightly flexed position. This bandage is shown in Illustration 5.

Fingers and thumbs are very often sprained. In the case of a finger, the easiest method is to tape the injured member to the one next to it, which limits the motion and prevents further injury. If necessary, a splint similar to those used for dislocations can be used.

The thumb is usually sprained at the metacarpo-phalanx joint and can be immobilized by the use of the figure of eight tape, using one-half inch material. The direction of the sprain should first be determined and the support given on that side. That is, the thumb should be prevented from going in or out, depending upon whether the sprain was inward or outward.

The principle for the treatment of sprains and dislocations is to allow the injury rest and protection until healing is complete. By the use of heat, the circulation is increased and the healing processes favored.

Three general types of bruises are received, namely bruises of the bones, of the muscles, and superficial bruises involving only the subcutaneous tissue.

Illustration 6
Spica bandage of the thumb, showing palm and back side

The treatment of bone bruises is very limited. Heat is used, but the healing process is extremely slow and protection against further injury is of the greatest value. Pads in the form of a washer or doughnut are made to place the pressure around the bruise rather than on it.

In case of a muscle bruise or "charley horse", heat is used with the electric baker; this treatment is given for twenty minutes with a ten minute rest and then an additional twenty minutes of heat. As much rest as possible is given in order to allow the injured tissue time to heal, and additional pads are placed over the injury during practice. The same principle is used as on bone bruises. That is, the pad is placed so that no further pressure can

be placed on the injury, but it is distributed over a large area around the injury. For extreme cases ice packs are used to reduce the swelling; in these cases, rest is absolutely necessary until the pain disappears.

There are several parts of the body where both the muscle and bone tissues are involved if bruised. A good example of this is a bruise of the crest of the ilium. This is a fairly common football injury usually received while charging through the line and being hit by an opponent's knee or thigh. If severe, the injury incapacitates the player for some time as few movements of the trunk are possible without causing pain, for the bone is bruised as well as the muscles at their attachments.

Subcutaneous tissue is always injured in the above cases. In slight blows, this tissue only is injured and there is no serious handicap nor pain. For localities like the shin, thin pads can be used but most players prefer to go without any added protection. Heat can be used very satisfactorily for these cases.

All serious abrasions and lacerations are treated against infection, the dressings being put on in the infirmary and the nurses doing practically all of this type of work. Before practices, these compresses are either changed in the training room or are retaped. A good compress for treatment is not often a good protection for playing football and so they are reduced in

size and otherwise taped to make them as small as possible. Then a protective pad is used if necessary, and after practice new compresses are applied at the infirmary.

By these methods, no serious infections result. Often the wounds are badly irritated during play but the infection is kept at a minimum.

All players are warned about blisters and much precaution is taken to guard against them, a solution of tincture of benzoin compound being used to paint each player's feet every night after practice for the first three weeks. This solution toughens the skin and its use gives opportunity for a thorough foot inspection each night.

Potential blisters are covered with adhesive tape before practice. After the blister has developed, if it does, it is protected by adhesive tape with a smaller piece reversed over the raised area. This reversed piece is the size and shape of the blister and is placed directly over it, thus preventing the skin from being torn off when removing the tape and still preventing friction over the spot.

If the blister is broken, the same procedure is used for practice, and a sterile compress is used at other times. As has been shown, most of the blisters

occur at the first of the season when the shoes are new and the skin is soft.

To prevent infections under adhesive strappings, the skin is first painted with tincture of benzoin compound. This method reduces the so-called "adhesive infections" which are so commonly found on areas where adhesive has been for any length of time. If not applied too thickly, it cleans the skin and the adhesive will adhere much better. Care must be taken to pull the tape off against itself and not directly away from the skin when removing it. Bad tears can easily occur on tender skin.

All cases of sickness, boils, etc., are reported to the infirmary and cared for there. When it is possible for the player to play with the use of protective pads, these are put on by the trainer immediately before the game or practice.

Experience shows that it is better to give the player rest in doubtful cases rather than play him, as recovery is more rapid and satisfactory if this is done.

# CHAPTER VIII

## CONCLUSION

Football is undoubtedly the most hazardous sport played at the College of the Pacific. It definitely is a game for the more strenuous individuals only, and a player with low vitality or poor muscular development is soon weeded out, either by the coach or, what is more common, by the physical punishment which he receives in the daily practices. Weight, unless excessive, is usually an advantage and it is seldom that a light player makes an outstanding success.

But for those who are physically capable, very little permanent harm from the game is found. The records show that no deaths have occurred at Pacific from the effects of football during the past ten years, and that only forty serious injuries have occurred during this period. Of this group, only four have left any cosmetic effect and two others show a slight occupational interference. Of the other numerous injuries including the abrasions, contusions, sprains and strains, all have healed nicely and no body defects nor weaknesses have resulted.

Of the 1933 injuries, the feet and lower legs received the most, while the torso received the next greatest number. Lacerations and contusions were the most

numerous, but injuries of the joints were responsible for the greatest loss of playing time.

Actual game competition was much more hazardous than practice although the number of injuries received in practices was almost equal to the number received in games. This was because the number of practice hours was many times greater than the number of game hours.

There is a very definite correlation between the number of injuries received and the physical condition of the players. From thirty-five to fifty percent of the injuries were received in the first quarter of the playing season during this ten year period. This is the time when the players are getting in condition and learning the fundamentals of the game. This fact alone should be a large factor in determining the nature of the season's schedule.

Each position on the squad seems about equally hazardous although the tackler on the defense and the ball carrier on the offense are the most dangerous during competition. In practice, the poorer players are more often hurt as they do not seem to be able to protect themselves.

As some injuries are inevitable, adequate protection and treatment are of the utmost importance. This protection should be used to guard against the occurrance of injury as well as to protect injuries unavoidably

received. Only those suits which are properly constructed should be used and under no conditions should the pads be removed during scrimmage periods. Injuries which can be protected against any further harm should receive this additional support at once.

All treatment should be supervised by a physician who has received special training in this field. Under no condition should the health or life of a player be risked to satisfy a victory crazed coach or to save a few dollars.

Football has become a vital part of the national life as well as that of the individual school. It serves as a definite form of recreation for the citizenry of the nation and also for the non-playing members of the student bodies. It serves as a common interest for large groups and does definitely stimulate interest in out-of-door activities.

The player himself receives the greatest benefit. He must keep in the best possible physical condition and is taught to take care of his body and to avoid all things that are harmful to his well being. His sleep, diet, and other habits are regulated and he learns the benefits of strict training.

He is taught how to work with his fellow players for a common cause. He is taught that he has an assignment and, in order for the play to be a success, that

assignment must be completed. He learns what a losing fight means and experiences the satisfaction of putting up a good battle when all of the odds are against him. And on occasion, he experiences the joy of winning under conditions such as these. He learns to take both victory and defeat gracefully and he learns to take punishment and still keep his temper.

Under properly supervised playing conditions, the benefits derived from the game do outweight the harmful features, and the game should not be too strongly condemned nor criticized, at least until a better substitute can be found.

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# APPENDIX

## Far Western Conference Standings; 1925 to 1933 Inclusive

### 1925

| | W | L | T | % |
|---|---|---|---|---|
| St. Mary's | 3 | 0 | 0 | 1.000 |
| Nevada | 3 | 1 | 0 | .750 |
| Cal. Aggies | 2 | 2 | 0 | .500 |
| PACIFIC | 1 | 2 | 0 | .333 |
| Fresno | 0 | 4 | 0 | .000 |

### 1926

| | W | L | T | % |
|---|---|---|---|---|
| St. Mary's | 4 | 0 | 0 | 1.000 |
| Nevada | 3 | 1 | 0 | .750 |
| PACIFIC | 1 | 2 | 1 | .333 |
| Fresno | 1 | 2 | 1 | .333 |
| Cal. Aggies | 0 | 4 | 0 | .000 |

### 1927

| | W | L | T | % |
|---|---|---|---|---|
| St. Mary's | 3 | 0 | 0 | 1.000 |
| Fresno | 2 | 1 | 1 | .667 |
| Cal. Aggies | 2 | 1 | 0 | .667 |
| St. Ignatius | 2 | 2 | 1 | .500 |
| Nevada | 1 | 3 | 0 | .250 |
| PACIFIC | 1 | 4 | 0 | .200 |

### 1928

| | W | L | T | % |
|---|---|---|---|---|
| St. Mary's | 2 | 0 | 0 | 1.000 |
| St. Ignatius | 3 | 1 | 0 | .750 |
| PACIFIC | 2 | 1 | 0 | .667 |
| Cal. Aggies | 3 | 2 | 0 | .600 |
| Fresno | 0 | 3 | 1 | .000 |
| Nevada | 0 | 3 | 1 | .000 |

### 1929

| | W | L | T | % |
|---|---|---|---|---|
| Cal. Aggies | 5 | 0 | 0 | 1.000 |
| Nevada | 2 | 1 | 0 | .667 |
| San Jose | 2 | 1 | 1 | .667 |
| PACIFIC | 1 | 3 | 1 | .250 |
| Chico | 1 | 3 | 0 | .250 |
| Fresno | 1 | 4 | 0 | .200 |

### 1930

| | W | L | T | % |
|---|---|---|---|---|
| Fresno | 5 | 0 | 0 | 1.000 |
| Nevada | 2 | 1 | 0 | .667 |
| PACIFIC | 2 | 2 | 0 | .500 |
| San Jose | 1 | 2 | 1 | .333 |
| Cal. Aggies | 0 | 3 | 1 | .000 |
| Chico | 0 | 2 | 0 | .000 |

### 1931

| | W | L | T | % |
|---|---|---|---|---|
| PACIFIC | 2 | 1 | 2 | .667 |
| Cal. Aggies | 2 | 1 | 2 | .667 |
| Nevada | 2 | 1 | 1 | .667 |
| Chico | 2 | 1 | 1 | .667 |
| Fresno | 3 | 2 | 0 | .600 |
| San Jose | 0 | 5 | 0 | .000 |

### 1932

| | W | L | T | % |
|---|---|---|---|---|
| San Jose | 3 | 0 | 2 | 1.000 |
| Nevada | 2 | 0 | 1 | 1.000 |
| Chico | 2 | 2 | 0 | .500 |
| PACIFIC | 2 | 2 | 0 | .500 |
| Cal. Aggies | 1 | 3 | 0 | .250 |
| Fresno | 0 | 3 | 1 | .000 |

### 1933

| | W | L | T | % |
|---|---|---|---|---|
| Nevada | 3 | 0 | 0 | 1.000 |
| San Jose | 3 | 1 | 0 | .750 |
| PACIFIC | 3 | 2 | 0 | .600 |
| Fresno | 2 | 2 | 0 | .500 |
| Chico | 1 | 4 | 0 | .200 |
| Cal. Aggies | 1 | 4 | 0 | .200 |

# Former Pacific Football Players with Reference Numbers

A- 1 Allen, John

A- 2 Chastain, Harold

A- 3 Crandall, Paul

A- 4 Dollings, James

A- 5 Eckland, Ellis

A- 6 Ellis, Everett

A- 7 Francis, Ralph

A- 8 Henley, Bruce

A- 9 Hosie, Fred

A-10 Knoles, Pete

A-11 Odale, Lehman

A-12 Porlier, Vance

A-13 Puls, Ervin

A-14 Root, Eugene

A-15 Segerstrom, Charles

A-16 Shook, Alvin

A-17 Stark, Everett

A-18 Stark, Wilbur

A-19 Stouffer, Rovello

A-20 Tollestrup, Landry

A-21 Tregoning, Stuart

A-22 Truman, Lloyd

A-23 Vassar, Cyril

A-24 Wood, Coke

1933 Varsity Football Players with Reference Numbers

V- 1 Bainbridge, James
V- 2 Bates, Holeman
V- 3 Brown, Carl
V- 4 Challis, George
V- 5 Childress, Max
V- 6 Cobb, A. J.
V- 7 Corson, George
V- 8 DeLong, Rutherford
V- 9 Dodge, Fred
V- 10 Eakes, Leon
V- 11 Easterbrook, Harold
V- 12 Edwards, Maurice
V- 13 Farina, Robert
V- 14 French, Richard
V- 15 Goold, Everett
V- 16 Hamilton, Elton
V- 17 Hammond, Owsley
V- 18 Hankins, William
V- 19 Hench, George
V- 20 Hency, Ray
V- 21 Hoene, Roland
V- 22 Hoobyar, John
V- 23 Hughes, George
V- 24 Ijams, Bill
V- 25 Jackson, Francis
V- 26 Keyston, Robert
V- 27 Kjeldsen, Chris
V- 28 Lefever, Fred
V- 29 Leonhard, Clayton
V- 30 Lynch, Rodrick
V- 31 McCain, Pete
V- 32 McGlothen, Ray
V- 33 McQueen, Norman
V- 34 Miller, Kenneth
V- 35 Olver, Charles
V- 36 Randall, Robert
V- 37 Ritter, Irving
V- 38 Roberts, Jack
V- 39 Russell, Lester
V- 40 Savage, Elliott
V- 41 Schiffman, Milton
V- 42 Seeber, Don
V- 43 Stremmel, Adolph
V- 44 Strobridge, Gerald
V- 45 Thompson, James
V- 46 Truckell, George
V- 47 Wilson, Paul
V- 48 Wilson, Tom

# 1933 Freshman Football Players with Reference Numbers

F- 1 Baer, Roger

F- 2 Blackfield, William

F- 3 Cechini, John

F- 4 Coleman, John

F- 5 Cortez, Clarence

F- 6 Dearborn, Robert

F- 7 Dieckmann, Harold

F- 8 Emmett, Dan

F- 9 Henley, William

F-10 Johnston, John

F-11 Keaton, Norman

F-12 Mann, Oliver

F-13 Nash, Frank

F-14 Noack, Jack

F-15 O'Conner, Ray

F-16 Oleata, Joe

F-17 Parlier, Edward

F-18 Parsons, Beck

F-19 Reilley, Thomas

F-20 Reimers, John

F-21 Robinson, Victor

F-22 Sturrock, William

F-23 Taylor, Edwin

F-24 Trezise, Albert

F-25 Turner, Robert

F-26 Wood, George

## Injuries

A- 1 -Fractured navicular, 1927.
Bone removed January, 1928.
Player was automobile salesman when last seen in 1931. The wrist was slightly weak at that time, but did not interfere with his occupation.

A- 2 -Fractured rib, 1926
-Brain concussion, 1927.
Player is teaching school at Roseville, California.
No occupational or other interference.

A- 3 -Fractured rib, 1929.
Player is proprietor of a grocery store at Napa. No occupational or other interference.

A- 4 -Floating semilunar cartilage in knee, 1925.
Player is clerk in a store at Red Bluff. The injury interfered for several years during exercise, but there is no occupational interference at present.

A- 5 -Fractured rib, 1929.
Player quit school in 1931.
No complications had developed by that time.

A- 6 -Fractured rib, 1928.
Player is teaching school at Albany.
No occupational or other interference.

A- 7 -Fractured nose, 1929.
-Fractured metacarpal, 1930.
Player is Graduate Manager of Athletics at Pacific.
Nose is crooked but has good function.
No occupational or other interference.

A- 8 -Brain concussion, 1927.
Player now attending Stanford Medical College.
No apparent interference.

A- 9 -Fractured tibia, 1926.
Player now working in Stockton.
No occupational or other interference.

A-10 -Fractured nose, 1924.
Player teaching at the Sacramento Junior College.
Nose is crooked but has good function.

A-11 -Fractured fibula, 1928.
Player now working for an oil company in Los Angeles.
No occupational or other interference.

A-12 -Fractured nose, 1928.
No apparent defect at the end of the school year.

A-13 -Fractured nose, 1927.
-Dislocation of the acromio-clavicular joint, 1927.
Player operated on in January, 1928, and bones wired.
No occupational or other interference from either injury when last seen in 1931.

A-14 -Fractured nose, 1931.
Player now attending the California School of Technology at Los Angeles.
Nose is slightly crooked but has good function.

A-15 -Fractured metacarpal, 1930.
No occupational or other interference.
-Floating semilunar cartilage in knee, 1931.
Player operated on soon after the end of the season.
Is now a bank clerk at Sonora.
Very good results obtained.

A-16 -Fractured metacarpal, 1932.
Player now a student at Pacific.
No interference.

A-17 -Fractured nose, 1925.
Player is now doing clerical work in San Francisco.
Nose operated on soon after the season and now has better function than before the fracture. The nose had been fractured before the player enrolled at Pacific.

A-18 -Fractured rib, 1930.
Player worked in Stockton until November, 1933.
No occupational or other interference.

A-19 -Fractured phalanx (hand), 1927.
No apparent interference at the end of the school year.

A-20 -Fractured metacarpal, 1929.
No apparent interference at the end of the school year.

A-21 -Fractured nose, 1931.
Player graduated in 1932.
No apparent interference.

A-22 -Peroneus longus tendon torn from tendon sheath, 1926.
Player is now a mortician in Oakland.
No occupational or other interference.

A-23 -Fractured fibula, 1931.
Player now teaching school in Hopland, California.
No occupational or other interference.

A-24 -Fractured fibula, 1929.
Player now teaching school in Bishop, California.
No occupational or other interference.

F-17 -Fractured phalanx (foot), 1933.
Player now student at Pacific.
No apparent interference.

V-12 -Contused cervical vertebra, 1933.
Player now student at Pacific.
This region was previously injured but has good function at present.

V-13 -Fractured rib, 1933.
Player now student at Pacific.
No apparent interference.

V-15 -Brain concussion, 1933.
Player now student at Pacific.
No apparent interference.

V-18 -Fractured nose, 1933.
Player quit school soon after the injury.
The nose was set a second time, but the student now claims another operation is necessary.

V-29 -Fractured rib, 1930.
Player now a student at Pacific and was a member of the 1933 squad.
No interference.
-Fractured nose, 1933.
Player fractured the nose a second time before it had healed completely.
Good results were obtained after the second reduction.

V-39 -Fractured metacarpal, 1931.
Player now a student at Pacific and was a member of the 1933 squad.
No interference.
-Fractured zygomatic bone, 1931.
No interference.

V-42 -Brain concussion, 1933.
Player now working in Stockton.
No apparent interference.

V-44 -Fractured rib at junction of rib and cartilage, 1933.
Player quit school at the end of the season.
No apparent interference.

V-46 -Fractured rib at junction of rib and cartilage, 1933.
Player is now a student at Pacific.
No apparent interference.

Table 30

Incident of Football Injuries of Players as Tabulated in Table 7

| Number of Players | Number of Injuries |
|---|---|
| 2 | 6 |
| 1 | 5 |
| 3 | 4 |
| 3 | 3 |
| 6 | 2 |
| 17 | 1 |
| 42 | 0 |

Table 31

Incident of Injuries from Athletics other than Football as Tabulated in Table 7

| Number of Players | Number of Injuries |
|---|---|
| 7 | 1 |
| 67 | 9 |

Table 32

Incident of Injuries Received from Accidental Causes other than Football as Tabulated in Table 7

| Number of Players | Number of Injuries |
|---|---|
| 1 | 4 |
| 3 | 3 |
| 13 | 1 |
| 57 | 0 |

Table 33

Incident of all Injuries Received as Tabulated in Table 7

| Number of Players | Number of Injuries |
|---|---|
| 1 | 9 |
| 3 | 6 |
| 2 | 5 |
| 1 | 4 |
| 8 | 3 |
| 8 | 2 |
| 19 | 1 |
| 33 | 0 |

Data on Varsity Football Players
for the 1933 Season

| Player | Age | Weight | Height | Injuries A | Injuries B | Days Practice | Minutes Played | Position |
|---|---|---|---|---|---|---|---|---|
| V- 1 | 20 | 186 | 74 | 1 | 30 | 55 | 351 | Back |
| V- 2 | 21 | 208 | 73 | 2 | 5 | 45 | 12 | Guard |
| V- 3 | 25 | 206 | 73½ | 1 | 19 | 51 | 591 | Tackle |
| V- 4 | 20 | 182 | 72½ | 3 | 6 | 49 | 132 | Back |
| V- 5 | 19 | 170 | 71 | 3 | 9 | 56 | 73 | End |
| V- 6 | 19 | 193 | 68½ | 2 | 4 | 43 | 26 | Guard |
| V- 7 | 22 | 185 | 73 | 5 | 21 | 47 | 343 | Center |
| V- 8 | 24 | 193 | 69 - | 2 | 3 | 56 | 12 | Tackle |
| V- 9 | 22 | 180 | 71 | 3 | 12 | 53 | 492 | Guard |
| V-10 | 20 | 158 | 69 | 2 | 10 | 54 | 51 | End |
| V-11 | 22 | 206 | 74½ | 1 | 8 | 35 | 125 | Tackle |
| V-12 | 24 | 206 | 75 | 1 | 4 | 35 | 125 | Tackle |
| V-13 | 25 | 163 | 69 | 5 | 8 | 50 | 93 | Back |
| V-14 | 20 | 168 | 68 | 3 | 12 | 55 | 13 | Back |
| V-15 | 22 | 171 | 71 | 2 | 16 | 51 | 507 | Back |
| V-16 | 21 | 171 | 70 | 2 | 14 | 52 | 392 | Back |
| V-17 | 19 | 154 | 69 | 1 | 0 | 6 | 0 | Back |
| V-18 | 20 | 165 | 71 | 1 | 0 | 36 | 0 | End |
| V-19 | 21 | 153 | 69 | 4 | 11 | 56 | 134 | End |
| V-20 | 19 | 170 | 70 | 0 | 3 | 55 | 5 | Tackle |
| V-21 | 23 | 190 | 77 | 1 | 0 | 2 | 0 | Tackle |
| V-22 | 22 | 165 | 71 | 3 | 3 | 30 | 0 | Back |
| V-23 | 20 | 165 | 68 | 0 | 1 | 5 | 0 | Back |
| V-24 | 23 | 196 | 73 | 10 | 21 | 45 | 417 | Tackle |

(Continued on next page)

Data on Varsity Football Players
for the 1933 Season
(Continued)

| Player | Age | Weight | Height | Injuries A | Injuries B | Days Practice | Minutes Played | Position |
|---|---|---|---|---|---|---|---|---|
| V-25 | 22 | 169 | 70 | 0 | 0 | 6 | 0 | Back |
| V-26 | 19 | 175 | 71 | 0 | 4 | 37 | 0 | Guard |
| V-27 | 21 | 188 | 71½ | 4 | 9 | 54 | 375 | Guard |
| V-28 | 21 | 190 | 72 | 0 | 1 | 22 | 6 | Guard |
| V-29 | 21 | 149 | 68 | 2 | 0 | 22 | 15 | Back |
| V-30 | 22 | 171 | 70 | 3 | 6 | 52 | 69 | Guard |
| V-31 | 25 | 182 | 73 | 5 | 12 | 54 | 220 | End |
| V-32 | 20 | 188 | 73 | 2 | 3 | 51 | 2 | Center |
| V-33 | 24 | 181 | 70½ | 5 | 15 | 46 | 235 | Guard |
| V-34 | 21 | 153 | 67 | 1 | 0 | 24 | 0 | Back |
| V-35 | 24 | 173 | 72 | 0 | 0 | 15 | 45 | Center |
| V-36 | 19 | 162 | 69 | 3 | 8 | 55 | 236 | Back |
| V-37 | 20 | 171 | 71 | 3 | 3 | 35 | 5 | Back |
| V-38 | 22 | 173 | 74 | 4 | 2 | 31 | 10 | End |
| V-39 | 20 | 190 | 73 | 1 | 17 | 52 | 207 | Center |
| V-40 | 20 | 168 | 73 | 3 | 6 | 54 | 59 | End |
| V-41 | 21 | 170 | 71 | 0 | 2 | 6 | 0 | Guard |
| V-42 | 21 | 178 | 73 | 1 | 5 | 35 | 40 | Tackle |
| V-43 | 19 | 220 | 73 | 1 | 2 | 45 | 14 | Tackle |
| V-44 | 22 | 215 | 70 | 1 | 5 | 39 | 201 | Back |
| V-45 | 22 | 162 | 68½ | 0 | 6 | 56 | 17 | Back |
| V-46 | 20 | 177 | 73 | 8 | 7 | 41 | 350 | End |
| V-47 | 21 | 172 | 70½ | 2 | 5 | 56 | 273 | End |
| V-48 | 22 | 185 | 74 | 5 | 8 | 55 | 455 | Back |

Data on the Freshmen Football Players
for the 1933 Season

| Player | Age | Weight | Height | Injuries A | Injuries B | Days Practice | Minutes Played | Position |
|---|---|---|---|---|---|---|---|---|
| F- 1 | 18 | 156 | 71 | 3 | 3 | 45 | 175 | Back |
| F- 2 | 19 | 166 | 70 | 3 | 8 | 37 | 77 | Back |
| F- 3 | 19 | 187 | 73 | 1 | 0 | 47 | 271 | Tackle |
| F- 4 | 20 | 157 | 69 | 1 | 9 | 37 | 215 | Guard |
| F- 5 | 20 | 157 | 68 | 3 | 11 | 41 | 196 | Back |
| F- 6 | 18 | 208 | 73 | 2 | 1 | 15 | 30 | Tackle |
| F- 7 | 18 | 155 | 70 | 2 | 5 | 47 | 81 | Back |
| F- 8 | 18 | 177 | 74 | 7 | 5 | 43 | 85 | Tackle |
| F- 9 | 19 | 146 | 70 | 0 | 3 | 41 | 97 | End |
| F-10 | 17 | 210 | 73 | 0 | 0 | 37 | 48 | Guard |
| F-11 | 21 | 178 | 72 | 2 | 9 | 40 | 192 | Center |
| F-12 | 24 | 185 | 68 | 1 | 3 | 45 | 227 | Tackle |
| F-13 | 18 | 141 | 67½ | 2 | 4 | 44 | 7 | Back |
| F-14 | 19 | 165 | 72 | 0 | 2 | 17 | 46 | Back |
| F-15 | 20 | 143 | 69 | 2 | 1 | 23 | 12 | Back |
| F-16 | 19 | 168 | 69 | 4 | 2 | 44 | 245 | Back |
| F-17 | 17 | 162 | 71 | 7 | 10 | 36 | 37 | Guard |
| F-18 | 19 | 169 | 72 | 4 | 7 | 43 | 203 | End |
| F-19 | 18 | 164 | 68 | 0 | 0 | 9 | 3 | Back |
| F-20 | 20 | 167 | 72 | 2 | 2 | 36 | 115 | End |
| F-21 | 18 | 167 | 72 | 2 | 7 | 41 | 208 | Guard |
| F-22 | 17 | 156 | 68 | 2 | 1 | 10 | 20 | Guard |
| F-23 | 20 | 158 | 67 | 2 | 6 | 41 | 153 | Back |
| F-24 | 21 | 188 | 69½ | 4 | 9 | 40 | 128 | Back |
| F-25 | 19 | 180 | 71 | 0 | 2 | 36 | 87 | Center |
| F-26 | 18 | 177 | 69 | 1 | 2 | 42 | 232 | Back |