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A Comparison of Elapsed Times for Football Place Kicks and Block Rush Attempts

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A COMPARISON OF ELAPSED TIMES FOR FOOTBALL PLACE KICKS AND BLOCK RUSH ATTEMPTS

(TITLE)

BY

ROBERT CHARLES WEBER

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CHAPTER I

INTRODUCTION

During the last several years the use of the place kick as a means of scoring has changed the game of football. Allen and Weiskopf stated that according to statistics the kicking game accounts for 25 per cent of the scoring in professional football.[1] Crisler indicated that rarely was anything used for the try-for-point, or if stopped inside the opponents forty yard line, other than a place kick.[2]

Since the place kick is an important aspect of modern football, it would seem advantageous to consider techniques to defend against the place kick. There have been few attempts to set up a means of defending against place kicks and the writer has found no research published that related to the time it takes to execute the place kick or time needed to block an attempt.

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[1]George Allen and Don Weiskopf, "The Rams' Kicking Game," Athletic Journal, vol. 50 (June, 1970), pp. 48-49.

[2]H. O. Crisler, Modern Football (New York: McGraw-Hill Book Company, Inc., 1949), p. 174.

Need for the Study

For some time coaches and athletes have concluded that there is inadequate time for the defense to penetrate far enough to block a place kick. This study was needed to determine the validity of such beliefs and to study the elements of the place kick.

In attempting to block a place kick one needs to know the time the kicking team needs from the snap of the ball until the ball is actually kicked. This length of time will vary from team to team and from kick to kick. Acocella indicated that the time from the center snap to the moment the kick is away should take two seconds or less.[3] Leighty hypothesized that in order to have sufficient time to successfully complete a try-for-point, or field goal, the kicker must have a minimum of from two to three and a half seconds.[4] Thus, as one can see, there does not seem to be an accepted time period that adequately described the time needed to avoid having a kick blocked. The writer found no study concerning this time factor.

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[3]Frank B. Acocella, "Hidden Yardage By Timing Out the Kicking Game," Athletic Journal, vol. 48 (March, 1968), pp. 22-24.

[4]Jim Leighty, How to Develop A Strong High School Kicking Game (West Nyack, New York: Parker Publishing Company, Inc., 1967), p. 89.

In recent years the basic methods of blocking place kicks employed the overloading of a specific area, trying to overrun the opposition or create a gap to run through.

I. THE PROBLEM

The primary purpose of this study was to determine and compare the time required to kick a place kick, from the snap of the ball until it is kicked, and the time needed to reach the point from the line of scrimmage where the kick would be blocked.

The study was also concerned with determining the success of blocking place kicks with a prescribed technique and to determine whether a man was freed to rush the kick without being blocked.

Limitations

The study was limited by several factors. The study was limited by the small number of place kicks tried by and against Eastern Illinois University during the 1972 season. It was also impossible to time, during the practice sessions, all players that would be attempting to block place kicks on a weekly basis. For this reason, the study was limited to six subjects selected by the coaching staff. In selecting subjects for the study it was not possible to control such factors as mental attitude, determination,

psychological condition, and physical condition of the players throughout the season. Finally, the study was limited by the effect that the weather had on field and playing conditions, and the mechanical limitations of the cinematographic and timing equipment.

II. DEFINITION OF TERMS

Some terms which were unique and pertinent to the study have been defined as follows:

Line of Scrimmage

The line of scrimmage was the yard-line and it's vertical plane which passed through the point of the ball nearest to the team's own goal line.

Place Kick

The place kick was the act of kicking the ball from a fixed position either on the ground or on a tee.

Point of Block

The point of block was a point three feet high and one yard in front of the spot where the ball was placed by the holder.

Cinematography

Cinematography was the study of speed or motion through the use of moving pictures. A sequence of pictures

was used to observe the various phases of the movements studied and the time necessary to accomplish the movements.

CHAPTER II

REVIEW OF RELATED LITERATURE

Numerous investigations have been conducted concerning reaction and movement time, and the various phases of the kicking game. The literature reviewed was divided into three major areas: I. Related Material to Place-Kicking, II. Related Material Dealing with Cinematography, III. Electronic Measuring of Reaction and Movement Time.

I. PLACE-KICKING

The growing importance of the kicking game has led coaches to place greater value on the point after touchdown and field goal. Bryant, the head football coach at the University of Alabama, indicated that the overall kicking game was probably the most important phase of football. In considering the work to be completed on the practice field, he placed more emphasis upon the kicking game than other coaches. He stated that he could not have a sound football team unless he had an extremely sound kicking game.[1]

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[1]Harry E. Larche, Techniques of Football Coaching (New York: A. S. Barnes and Company, 1969), p. 110.

Unfortunately, this interest has been centered around methods of returning kicks and in the technique of kicking the ball. Little, if anything, has been done in trying to block a kick.

Crisler had this to say about blocking kicks:

> It is difficult to estimate the value to a team of blocking an opponents kick. Frequently it means winning the game. Always, if it is recovered by the blocking team, it means a great gain of yardage. Also, it acts as a tonic to the team that blocks the kick, stimulating and encouraging it; the team whose kick is blocked is affected in just the opposite way. Even when kicks are not blocked the kicker's effectiveness is greatly diminished if he is hurried. His accuracy in placing the kick is destroyed and the distance is nearly always reduced. Rushing the kicker therefore is of great importance.[2]

Murray and Falcone stated that a successful place kick involved accurate centering of the ball, proper placing and holding of the ball, good protection for the kick, and accuracy and speed on the part of the kicker.[3]

Killinger stated that the line from tackle to tackle should present a solid unbroken wall to protect the kicker during a place kick try.[4]

To create this wall, Dodd indicated that passive

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[2]H. O. Crisler, Modern Football (New York: McGraw-Hill Book Company, 1949), p. 174.

[3]Bill Murray and Carmen Falcone, "Kicking the Football," Athletic Journal, vol. 50 (April, 1970), pp. 48-49.

[4]W. Glenn Killinger, Football (New York: A. S. Barnes and Company, 1939), p. 22.

blocking for everyone on the line of scrimmage, including the two backs, should be used.[5]

Waldorf offered the following explanation of the technique for blocking during the place-kick:

> Every lineman is responsible solely to his inside and must not let anyone on the defensive team break through inside of him. The two backfield protectors line up about a yard back of the ends, with their inside foot back of the end's outside foot. As the ball is snapped they step forward with the inside foot, completing a continuous wall. The backs are responsible first to their inside, and then if they are sure that no one is coming inside, they may block from the inside out against any rusher who constitutes a threat (see Figure 1).[6]

Figure 1

The Step Down or Inside Method of Protection for Place Kicks

Leighty described the action of the protecting backs in this way: "The backs' responsibilities are primarily the same as that of the lineman: to break the

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[5]Robert L. Dodd, Bobby Dodd on Football (New York: Prentice-Hall, Inc., 1955), p. 276.

[6]Lynn O. Waldorf, This Game of Football (New York: McGraw-Hill Book Company, Inc., 1952), p. 91.

defensive man's charge and to shut off the flow to the inside. In performing this task, the back actually invites the defense to the inside and then closes the door on them from his highly advantageous blocking angle (see Figure 2)."[7]

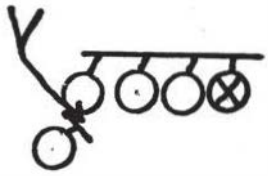

Figure 2

The Invitation or Crack Back Method of Protection for Place Kicks

Dodd felt if the two outside backs retained their base and forced the rush outside of their positions, the kick would be completed.[8]

A simple principle in blocking a place-kick was explained by Bryant. He suggested that one should attempt to overload the right side and block the protecting back to that side out while sending a linebacker or halfback inside.[9]

Another coach, Crisler, indicated that while

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[7]Jim Leighty, How to Develop A Strong High School Kicking Game (West Nyack, New York: Parker Publishing Company, Inc., 1967), p. 102.

[8]Robert L. Dodd, loc. cit.

[9]Paul W. Bryant, Building A Championship Football Team (Englewood Cliffs, N. J. : Prentice-Hall, Inc., 1960 p. 139.

attempting to block a place-kick you should:

> station the two fastest backs on their [ends] inside seams less than a yard back. The ends should be easy to pull because they have little experience with this stunt. The guards should pull the tackles; the ends should engage the blocking backs to permit the two fast men to streak through at a point two yards in front of the ball.[10]

According to Dodd, the most important factor involved in blocking a kick of any kind is to find the player who has a particular knack and desire for finding the ball. He may be a third stringer, but if he has the ability he should be put in this situation and his ability exploited.[11]

SUMMARY

The place kick has become a highly skilled and specialized phase of football. The accuracy of the center, the placing and holding of the ball, the speed and accuracy of the kicker, and the protection of the kicker by his teammates has an effect in the outcome. Two different theories on the technique used by the protecting backs have been discussed. Both have been widely used. Though several methods of blocking place-kicks have been tried, little has been done to establish the time needed to execute the kick or successfully block a place-kick.

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[10] H. O. Crisler, Modern Football (New York: McGraw-Hill Book Company, Inc., 1949), pp. 182-183.

[11] Bobby Dodd, "Defense Against the Kicking Game," Athletic Journal, vol. 22 (October, 1952), pp. 7-9.

II. CINEMATOGRAPHY

As early as 1873, photographs were used by Maybridge[12] in a study using a series of cameras lined along a race track to settle a disagreement on the sequence in which the feet of a horse contacted the ground.

Cureton[13] published one of the first articles recording the methodology used in cinematographic research in 1939.

Over the years coaches in a variety of sports have gained valuable insight through cinematographic studies. In baseball, studies have been conducted by Breen,[14] Fanning, [15] and Seng.[16] Track and field events have been

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[12]Ruth Glassow, Research Methods Applied to Health, Physical Education and Recreation: "Photographic and Cinemagraphic Research Methods," p. 216, Washington, D. C. : AAHPER, 1952.

[13]Thomas Kirk Cureton, "Elementary Principles and Techniques of Cinemagraphic Analysis as Aids in Athletic Research," Research Quarterly, vol. 10 (May, 1939), p. 3.

[14]James K. Breen, "A Cinematographical Mechanical Analysis of Major League Baseball Pitchers." Unpublished Master of Science Thesis, University of Illinois, Urbana, Illinois, 1947, p. 86.

[15]William James Fanning, "A Cinematographic and Mechanical Analysis and Comparative Study of The Catcher's Throw." Unpublished Master of Science Thesis, University of Illinois, Urbana, Illinois, 1961, p. 3.

[16]Charles N. Seng, "Visual Movements of Batters," Research Quarterly, vol. 25 (March, 1954), pp. 42-57.

studied by Cureton,[17] Abbott, [18] and Ganslen.[19] In swimming Cureton,[20] Councilman,[21] and Lanoue[22] have used cinematographic analysis.

Football coaches for many years have used cinematography in evaluating player performance in games and also in instructional films, but rarely have used it as a scientific tool. Smith[23] made a study of three football

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[17]Thomas Kirk Cureton, "Mechanics of the Track Racing Start," Scholastic Coach, vol. 4 (January, 1935), pp. 14-15.

[18]Richard Rockwood Abbott, "A Cinematographic Analysis of the Techniques of Hurdling." Unpublished Master of Science Thesis, University of Illinois, Urbana, Illinois, 1948, p. 90.

[19]Richard V. Ganslen, "Mechanics of the Pole Vault." Unpublished Master of Science Thesis, Springfield College, Springfield, Massachusetts, 1938; privately published later in a booklet, Mechanics of the Pole Vault, Fayetteville, Arkansas: revised, 3rd ed. 1957, p. 93.

[20]Thomas Kirk Cureton, "Mechanics and Kinesiology of Swimming," Research Quarterly, vol. 1 (December, 1930), pp. 87-121.

[21]James R. Councilman, "A Cinematographic and Mechanical Analysis of the Butterfly Breast Stroke." Unpublished Master of Science Thesis, University of Illinois, Urbana, Illinois, 1948, p. 119.

[22]E. R. Lanoue, "Mechanics of Fancy Diving." Unpublished Master of Science Thesis, Springfield College, Springfield, Massachusetts, 1934; cited by William J. Fanning, "A Cinematographic and Mechanical Analysis and Comparative Study of The Catcher's Throw." Unpublished Master of Science Thesis, University of Illinois, Urbana, Illinois, 1959, p. 13.

[23]W. H. Smith, "A Cinematographic Analysis of Football Punting." Unpublished Master of Science Thesis, University of Illinois, Urbana, Illinois, 1949, p. 111.

punters to determine the best point of angle for projection and velocity, while Purvis[24] made an analytic study of college football passers.

SUMMARY

The use of cinematography in athletics has been used extensively since 1873. It has been primarily used to analyze techniques of individuals in track, swimming, and gymnastics. In recent years cinematography has become an important tool in team sports of baseball and football. It has developed to the extent that the movements of the eyes of a baseball batter have been studied through this method. In football this method has been used by coaches for the last twenty years. However many coaches have not exploited the potential in measuring reaction time and movement time.

III. ELECTRONIC MEASUREMENT OF REACTION AND MOVEMENT TIME

Many studies dealing with reaction and movement time have been conducted with electronic timing devices. Very few of these studies, however, have been directly related to a given sport and more specifically, football.

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[24]Charles Gorden Purvis, "A Cinematographic and Mechanical Analysis of College Football Passers." Unpublished Master of Science Thesis, University of Illinois, Urbana, Illinois, 1952, p. 92.

In baseball, Slater-Hammel and Stumpner[25] conducted a study dealing with the starting reaction-time and movement and reaction-time of subjects in the baseball swing. Zeller[26] used the Dekan Automatic Performance Analyzer to record movement and reaction time of pitchers in their pick-off move to first base. Seymour[27] was interested in comparing the time used to run to first base by running through the base and by leaping at the base on the final stride. Later, Campbell[28] used the Dekan Automatic Performance Analyzer with an electronic device, which was triggered when the bat contacted the ball, to study two methods of running to first base.

Jackson[29] adapted the Dekan Automatic Performance

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[25] A. T. Slater-Hammel and R. L. Stumpner, "Choice Batting Reaction-Time," Research Quarterly, vol. 23 (October, 1952), p. 377.

[26] Barton W. Zeller, "A Comparison of Three Hand Positions of a Right Handed Pitcher on the Pick-Off Move to First Base in Baseball." Unpublished Master of Science Thesis, Eastern Illinois University, Charleston, Illinois, 1966, pp. 13-14.

[27] Emery W. Seymour, "Comparison of Base Running Method," Research Quarterly, vol. 30 (October, 1959), pp. 321-325.

[28] Leon Campbell, "A Comparison of Two Methods of Running to First Base." Unpublished Master of Science Thesis, Eastern Illinois University, Charleston, Illinois, 1971, p. 20.

[29] Willie Clyde Jackson, "Explosive Muscular Power, Reaction, and Running Speed Within and Between College Athletes, and Non-Athletes." Unpublished Master of Science Thesis, Eastern Illinois University, Charleston, Illinois, 1971, p. 19.

Analyzer to determine the length of time his subjects were in the air when vertical jumping. Henry[30] published an article in track on the reaction times of runners when using a sprint start. Later Stock[31] studied the influence that the bunch, medium, medium high hip, and elongated track starts had on running speed.

The Magliechos[32] used the Dekan Automatic Performance Analyzer to determine if the circular backswing, straight-backswing or arms-back start was the fastest means of starting in swimming. In wrestling, Spyke[33] wrote on the relationship of finger reaction time to success in high school wrestling. Rasch, et. al.[34] indicated that there are no significant differences in

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[30]Franklin M. Henry, "Force-Time Characteristics of the Sprint Start," Research Quarterly, vol. 23 (October, 1952), p. 301.

[31]Malcolm Stock, "Influence of Various Track Starting Positions on Speed," Research Quarterly, vol. 33 (December, 1962), p. 607.

[32]Cheryl W. Maglischo and Ernest Maglischo, "Comparison of Three Racing Starts Used in Competitive Swimming," Research Quarterly, vol. 39 (October, 1968), pp. 604-609.

[33]Herbert A. Sypke, "The Relationship of Reaction Time to Success in High School Wrestling." Unpublished Master of Science Thesis, Eastern Illinois University, Charleston, Illinois, 1968, p. 17.

[34]Philip J. Rasch, William R. Pierson, Eugene R. O'Connell and M. Griggs Hunt, "Response Time of Amateur Wrestler," Research Quarterly, vol. 32 (October, 1961), pp. 416-418.

reaction time or movement time among collegiate non-wrestlers, collegiate wrestlers and championship level American wrestlers when the groups are equaled for age.

In football, Miles and Graves[35] found that there were fewer off-sides and a quicker reaction time to the ordinary anticipatory signal than the non-anticipatory signal. Thompson, et. al.[36] studied rhythmic digit, rhythmic word-digit, non-rhythmic word-digit and non-rhythmic color starting signals and movement times for each starting signal. Owen[37] was interested in the effect of hand and foot spacing on movement time and force of charge. Elbel, et. al.[38] found that with forty-five University of Kansas football players, there was no relationship between movement time of the charge of a lineman and the force exerted.

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[35]W. R. Miles and B. C. Graves, "Effect of Signal Variation on Football Charging," Research Quarterly, vol. 2 (October, 1931), pp. 14-31.

[36]Clem W. Thompson, Francis J. Nagle and Robert Dobias, "Football Starting Signals and Movement Times of High School and College Football Players," Research Quarterly, vol. 29 (May, 1958), pp. 222-230.

[37]Jack A. Owens, "Effect of Variations in Hand and Foot Spacing on Movement Time and on Force of Charge," Research Quarterly, vol. 31 (March, 1960), pp. 66-76.

[38]Edwin R. Elbel, Donald Wilson, and Clarence French, "Measuring Speed and Force of Charge of Football Players," Research Quarterly, vol. 23 (October, 1952), pp. 295-300.

SUMMARY

Electronic devices have been used in a wide range of studies dealing with reaction and movement time. These studies have been conducted in baseball, wrestling, swimming, gymnastics, and football.

CHAPTER III

PROCEDURES

The purpose of the study was to compare the time required for collegiate football players to perform a place kick with the time needed for one to reach the point where the kick could be blocked. To provide an accurate account of the methodology used in the collection of data, a description of subjects, test equipment, and procedures employed, are presented in this chapter.

I. SUBJECTS

The subjects for the study were six Eastern Illinois University football players and players from the schools comprising the 1972 football schedule of Eastern Illinois University. The six football players, three linebackers and three defensive backs, were selected by the coaching staff on the basis of (1) quickness and speed, (2) willingness to give an all out effort for the team, (3) durability and (4) whether they were considered possible traveling squad members.

Players from the following schools comprising the 1972 Eastern Illinois football schedule, were also part of the study: (1) Indiana State University, (2) University

of Wisconsin Milwaukee, (3) University of Illinois Chicago Circle, (4) Illinois State University, (5) University of Evansville, (6) Central Michigan University, (7) Southwest Missouri State College, (8) Quantico Marines, (9) Central Missouri State, (10) Western Illinois University.

II. MEASUREMENTS

There were two measurements administered in the study. One consisted of measuring cinematographically, the time it took the Eastern Illinois University football team and their 1972 football opponents to attempt a place kick and block attempt. The other was an electronic measurement of the time it took selected Eastern Illinois University players to reach the point of block from a specific place on the line of scrimmage. The electronic timing was done after practice once each week, with no offensive players obstructing the rush.

Elapsed Time of Rush During Practice Session

The purpose and the method of conducting the study was explained to the six Eastern Illinois football players used as subjects. The testing apparatus was explained and demonstrated. Questions concerning the testing apparatus, the nature of the study, the theory involved, and techniques to be used under game conditions were discussed until each subject understood his responsibilities and those of his

teammates involved in the study.

The time it took to reach a point where a place kick could be blocked was electronically measured following a practice session each week. The six subjects were given three trials each and their time was recorded to the nearest hundredth of a second.

The timing device used for the study was the Automatic Performance Analyzer, Model 631, which is produced by the Dekan Timing Device Company, located in Glen Ellyn, Illinois. Instruments of accessories which were used with the timing device were: (1) Cenco Photo-electric Demonstrator and light source, (2) a start switch mounted on a junction box, (3) an impact switch embedded in a football stuffed with rags and (4) a weighted swivel "T" from which the ball was suspended. The timing device was used to measure the time it took a player to react to the movement of the ball on the start switch until he touched the impact switch on the football located at the point of block.

The measuring apparatus was placed at a specified yard line on the football field so a line of scrimmage would be designated. The start switch was placed on the line of scrimmage with a football resting on it and a football player in a centering position over the ball. Twenty-one feet to the left of the junction box and center, the inside pole of an electronic eye composed of the Cenco

Photoelectric Demonstrator and light source, was placed on the line of scrimmage. The electronic eye was adjusted so when the light source was interrupted prior to the center snap, a buzzer would sound indicating off-sides. As the center moved the ball, the clock was started and ran until the athlete made contact with the suspended football, twenty-seven feet behind the point of snap, at a height of three feet. The football was suspended by a means of a swivel "T".

Elapsed Time of Place Kicks and Rush During Game Conditions

Each place kick attempt by Eastern Illinois University and their 1972 football opponents under game conditions was recorded by an electrically operated 16 millimeter Airflex camera using Plus X Reversal Night film run at a constant twenty-eight frames per second. The number of frames that elapsed from the time the ball was snapped until it was kicked were counted. This was accomplished by using a Craig Projecto Editor, Model V 46 and a Newmade Motor Rewind, Model PD. The number of frames was converted to the nearest hundredth of a second.

The film was also analyzed to observe whether defensive players were free to rush the kick with their path unobstructed, and if so, the length of time it took a defender to reach the point of block.

CHAPTER IV

ANALYSIS OF DATA

Six Eastern Illinois University football players and selected players from each of the ten teams comprising the 1972 Eastern Illinois University football schedule were studied to compare the time needed to kick a place kick with the time needed to reach the point where a place kick would be blocked. Each week all the place kicks attempted and the attempts by Eastern Illinois University football players to block the kicks, were cinematographically recorded. During each week of practice an electronic timing device was used to record the simulated block attempts by the six Eastern Illinois University football players. The raw data have been presented in the Appendix.

I. DATA CONVERSION

In order to analyze the data, in some instances, raw data were converted to more meaningful units. The place kick times and place kick block times which were recorded cinematographically during the game conditions at twenty-eight frames per second were converted to the nearest one hundredth of a second.

II. FINDINGS

Figure three contains the mean times for the practice rush, game rush and the game place kicks. The mean times of the place kicks were faster than the mean times of the place kick rush during practice sessions. The fastest weekly mean time was 1.33 seconds for place kicks, while the slowest weekly mean time 2.15 seconds was recorded for the place kick rush during practice sessions. The difference of the weekly mean times for each group were .35 seconds (1.33 to 1.68) for place kicks, .48 seconds (1.37 to 1.85) for the place kick rush during game conditions and .35 seconds (1.80 to 2.15) for the rush during practice sessions. The difference in the ranges each week between the place kick group and the place kick rush during game conditions was as little as .04 seconds in week five and as great as .39 seconds in week four. The mean time for the place kick rush under game conditions in week five was faster than the mean times of place kicks in weeks one, two, three, seven, eight, nine, and ten.

Figure four contains the range of times for each individual week for the place kicks and the place kick rush under game conditions. The ranges of the place kicks differed greatly from a high in the nineth week to a low in weeks one and four, while the rush under game conditions had a high range of times in week six to a low in weeks

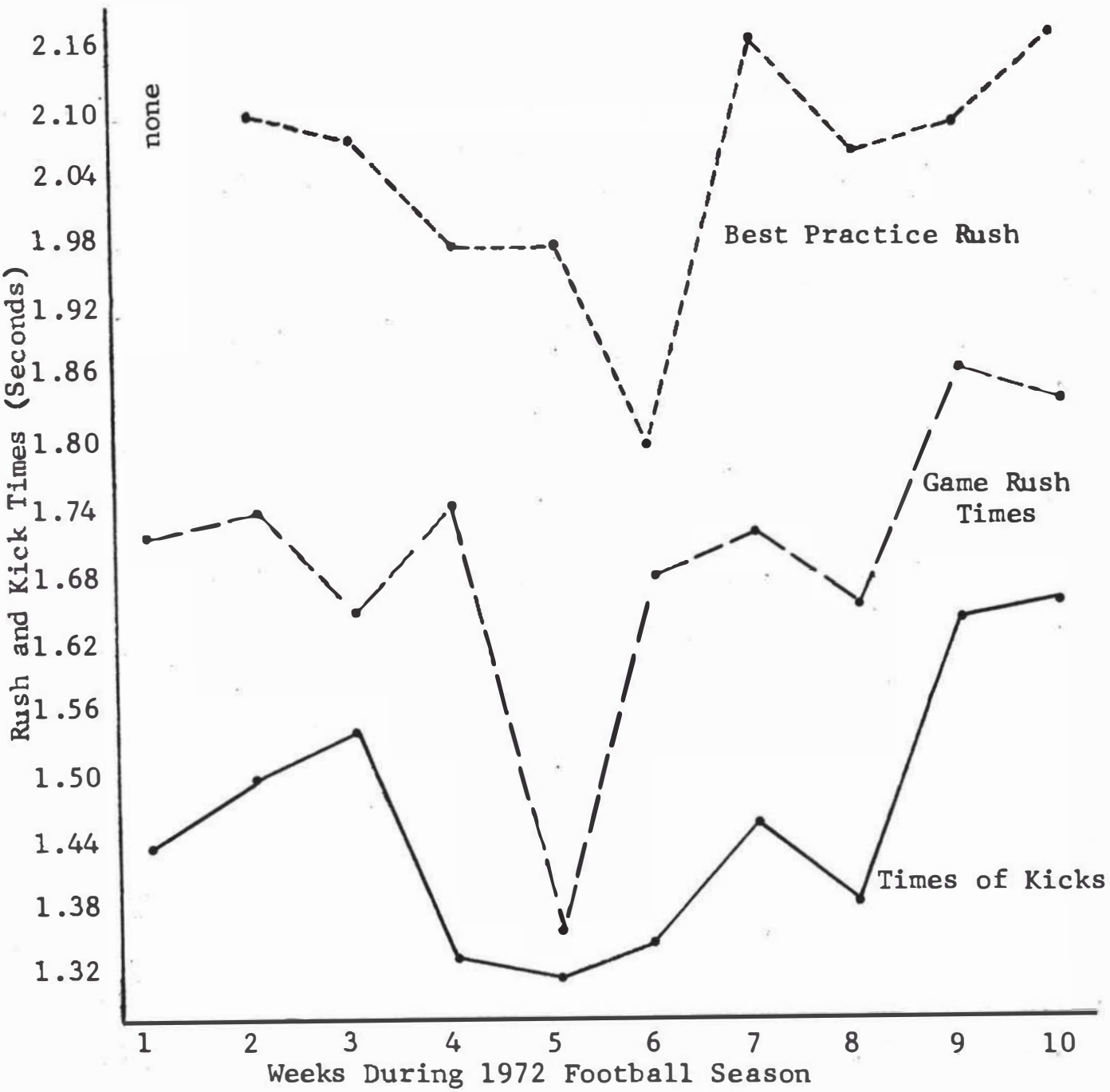

Figure 3

Mean Weekly Times of Place Kicks, Rush Under Game Conditions, and Best Rush Under Practice Simulations

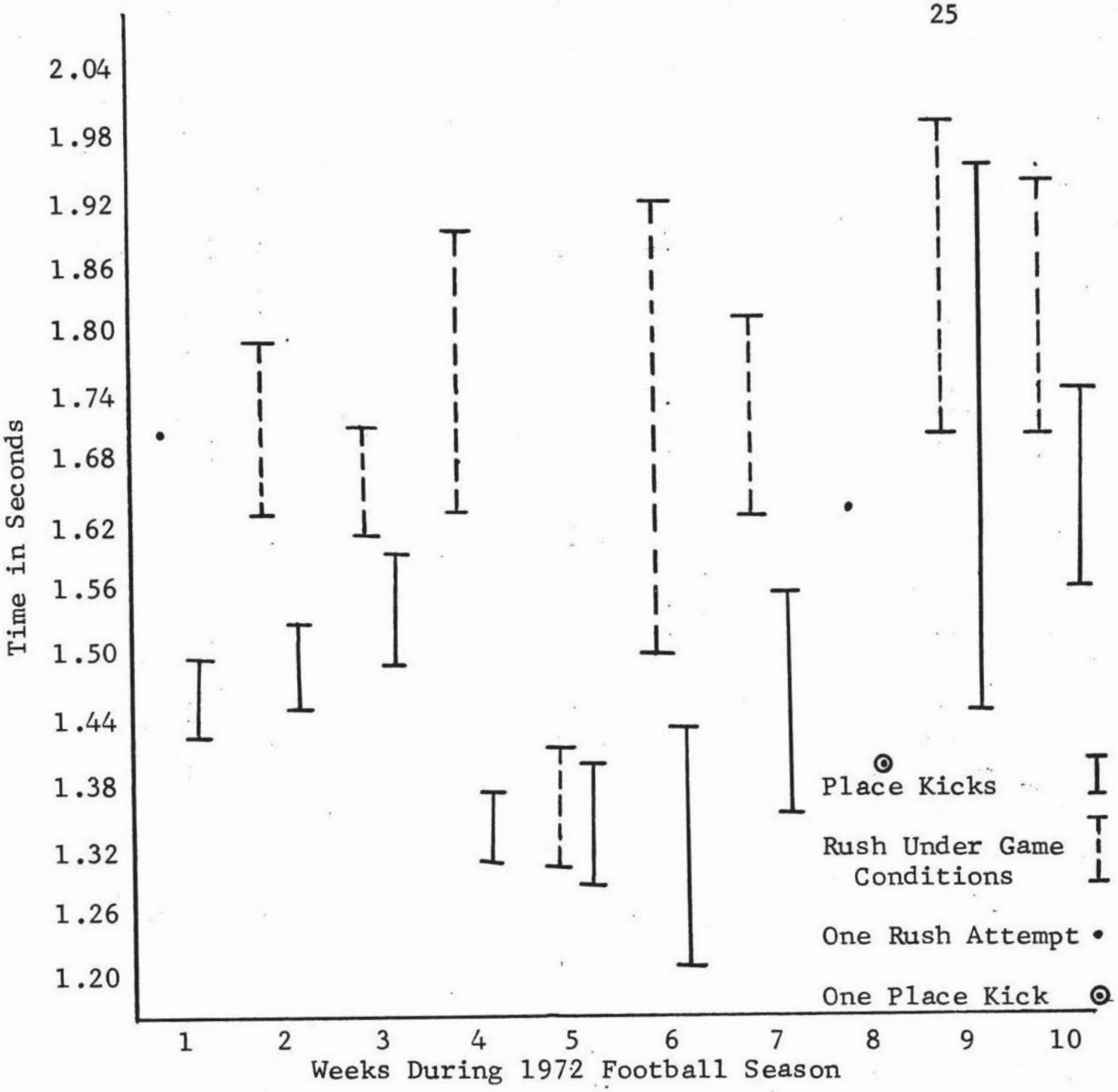

Figure 4

Range of Times Each Week for Place Kick and Rush Under Game Conditions

three and five. The range of the rush times under game conditions during week five was not as great as the place kick ranges of weeks one, two, three, nine, and ten. The ranges of rush times recorded in certain weeks were faster than portions of other weeks.

Figure five contains the mean scores for the total season for each of the three groups. The mean times of all place kicks were found to be 1.45 seconds, place kick rush under game conditions 1.72 seconds and 2.04 seconds for the place kick rush under practice simulation.

III. SUMMARY AND DISCUSSION

It was the purpose of the study to compare the time needed to kick a place kick with the time needed to reach the point of block while rushing a place kick. Each week the mean time for place kicks was faster than the place kick rush times during practice sessions. The range and mean times of all attempted place kicks during the season was faster, than the rush under game conditions and place kick rush, during practice sessions.

It is not possible at present to explain the exact reasons for the great variations in the range of times from week to week. When discussing the findings certain observations made during the investigation should be mentioned.

The first observation was the great variation in the elapsed time needed to kick a place kick. This variance

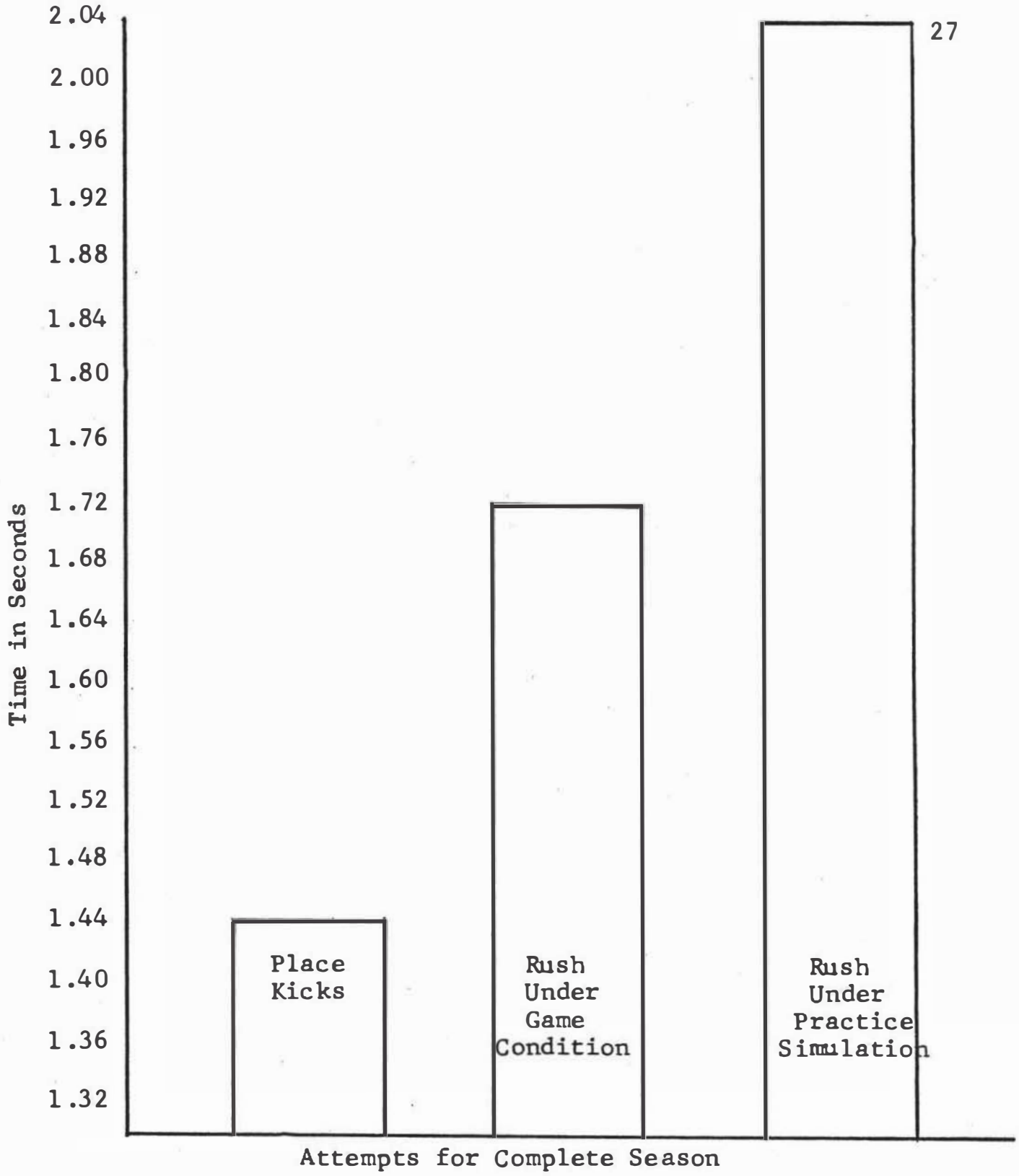

Figure 5

Seasonal Mean Times of Place Kicks, Rush Under Game Conditions and Rush Under Practice Simulation

was directly related to three factors. The first factor was the various speeds at which the centers snapped the ball back to the holder. The second, the speed of the holders in placing the ball, and the third was the speed of the kickers in approaching the ball and performing the kick. These factors could explain the variation in the weekly mean times for attempted place kicks.

Another factor which may explain the variation of the place kick times would be the weather conditions. However, there was very little variance in the mean times of Eastern Illinois University place kick attempts for all ten weeks including those when weather conditions were poor. This fact helps establish the notion that the variance in mean times can not be attributed solely to the weather.

A second observation made involved a study of the mean place kick rush times. There was a trend of improved times each week through weeks five and six and then a decisive slowing of times occurred.

Coaches and teachers generally agree that through practicing a skill individuals may improve their performance. This may account for the general improvement during the first five weeks of the study. Usually at this point the level of skill would remain relatively constant. However, there was a sharp decline in skill performance. This may have been partially due to the lack of day light hours for

practice because of the time change from Central Day Light Savings Time to Central Standard Time. The change in time meant a loss of one hour of day light and a decrease in the length of practices from 30 to 45 minutes as the season progressed. The shorter time for practice made it necessary to decrease the time spent on the skill of place kick rushing which may have led to a loss in skill proficiency.

The next three factors, since they were inter-related, will be discussed together. The game results revealed that during the first three ball games Eastern won one game and lost in two very close games. It was also during this period that the only successful place kick block attempt occurred for the season. The morale or psychological state of the players was very good. The team had success in blocking a place kick, the weather conditions had been good and the team had sustained very few injuries. However, in week four, the team received their third loss of the season by a large score. The demoralizing score of this game marked the turning point of the season because of the psychological attitude of the players and injuries that the team sustained. In week five Eastern Illinois University was again involved in a close contest under good weather conditions which may have accounted for the fastest mean rush time of the season. Another loss was a severe set back in week six which led to great demoralization of the players. Several new injuries probably caused the

abrupt slowing down of the mean time as well as an increase in the range of place kick rush times under game conditions for weeks six through ten. Another factor in the poor rush times in weeks six through ten was the poor weather conditions and very poor footing created by these conditions.

The third observation concerned the place kick simulation rush during practice. There was a noticeable difference between the rush times during practice sessions and those of the place kick rush times under game conditions. The only time from the practice sessions that compared favorably with a game data was in week six and then it only reached the level of the very slow times during weeks nine and ten for the rush under game conditions.

The writer believes this phenomena was due to many of the same factors already discussed. Weather conditions and lack of day light hours had an effect since on two occasions it was necessary to move practice for these timings into the field house. Also, it was necessary to have these practice timings after the regular practice was over and in most instances after the majority of team members left the field. This condition probably contributed to a lack of player motivation. The elements of timings after practice, the weather, frustrations due to a losing season and the lack of a motivation factor during practice resulted in a generally poor psychological condition of the players and consequently the poor timings during

practice rush sessions.

A final observation was made during the games and was later confirmed by a review of the game films. The film reviews showed that on six occasions the player rushing the place kick reached the point of block only to have the ball pass under his outstretched arms. This was the case on two attempts in week five and once each in weeks three, seven, nine and ten. Further investigation of these kicks indicated a difference up to .11 seconds existed between the time of kick and the time the player reached the point of block. This would indicate that a rusher could be as much as .11 seconds late arriving at the point of block and still block the kick if the hands and body of the rusher were placed or positioned correctly.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The primary purpose of this study was to determine and compare the time required to kick a place kick, from the snap of the ball until it is kicked, and the time needed to reach the point from the line of scrimmage where the kick would be blocked.

There were two measurements administered in the study. One consisted of measuring cinematographically, the time it took the Eastern Illinois University football team and their 1972 football opponents to attempt a place kick and the time it took to reach the point of blocking attempted place kicks. The other was an electronic measurement of the time it took selected Eastern Illinois University Players to teach the point of block from a specific place on the line of scrimmage during practice sessions.

The data collected from each of the tests were converted to (.01) one one-hundredth of a second and analyzed by graphing the findings.

CONCLUSIONS

The following conclusions appear warranted:

1. The time needed to kick a place kick ranged from 1.21 seconds to 1.96 seconds.
2. A player rushing the place kick attempt reached with his hands the point of block .11 seconds after the ball had been kicked and blocked the kick.
3. It is physically possible for a player rushing a place kick to block an attempt rushing from an outside position on the line of scrimmage.

RECOMMENDATIONS

The following recommendations are presented as a result of the study:

1. Further studies should be undertaken using a larger sample so more observations could be obtained.
2. Further studies should be undertaken using higher speed cameras, different camera angles, two or more cameras and grids behind to improve accuracy of measurements.
3. Further studies should be undertaken at the levels of professional, college, and high school football.

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APPENDIX

TABLE 1

Place Kick Performance Times
of 1972 Opponents

No. Place Kick	Games									
	1	2	3	4	5	6	7	8	9	10
1	1.50	1.54	1.60	1.32	1.32	1.36	1.36	1.39	1.96	1.57
2	1.50	1.46	1.50	1.39	1.29	1.39	1.36		1.54	1.71
3	1.43	1.54		1.32	1.39	1.36	1.57		1.57	1.68
4				1.36		1.43	1.57		1.46	1.75
5						1.39			1.68	
6						1.43				
7						1.36				
8						1.32				
9						1.21				
10						1.32				
Mean Time	1.44	1.51	1.55	1.35	1.33	1.36	1.47	1.39	1.64	1.68

All Times Recorded in Seconds

TABLE 2

Place Kick Rush Performance Times
of Eastern Illinois University

No. Place Kick Rush	Games									
	1	2	3	4	5	6	7	8	9	10
1	none	1.78	1.71	1.91	none	1.68	1.64	1.64	2.00	1.56
2	none	1.75	1.61*	1.64	1.32	1.75	1.82		1.79	1.71
3	1.71	1.64		1.71	1.42	1.93	1.64		1.86	1.96
4						1.68	1.71		1.71	1.91
5						1.60			1.89	
6						1.71				
7						1.50				
8						1.64				
9						1.71				
10						1.64				
Mean Time	1.71	1.73	1.66	1.74	1.37	1.68	1.71	1.64	1.85	1.83

All Times Recorded in Seconds
* Kick Blocked

TABLE 3

Performance Times for Eastern Illinois
University Place Kicks

No. Place Kicks	Games 1	2	3	4	5	6	7	8	9	10
1	1.36	1.36	1.43	1.32	1.36	none	1.29	1.29	1.73	1.64
2	1.20	1.21	1.36		1.29		1.25			
3			1.29				1.36			
4			1.29				1.39			
Mean Time	1.28	1.28	1.39	1.32	1.33		1.32	1.29	1.73	1.64

All Times Recorded in Seconds

VITA

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The writer was born in West Union, Iowa on October 11, 1948. He attended elementary school in Kankakee, Illinois, Boulder, Colorado, and Bemidji, Minnesota. In the fall of 1964, he entered Bemidji High School, where he graduated in June of 1967. While in high school he lettered in football, basketball and golf. After graduation from high school, he attended the University of Minnesota, Morris for two years. During this time he participated in track and football, and served as Assistant Intramural Director and as a Student Senator. He then transferred to Bemidji State College where he played two years of football and served as a housing assistant. He pursued a composite major in physical education and health, minors in drivers education and recreation. He received the Bachelor of Science in Education Degree in December of 1971. Upon graduation he worked as Recreation and Adult Education Director at Cass Lake, Minnesota and served as head track and assistant basketball coach. He was married in August of 1972 to the former Debra Elaine Nay. He enrolled as a graduate assistant in the School of Health, Physical Education, and Recreation at Eastern Illinois University pursuing a Masters of Science Degree and acted as an assistant football coach. His teaching assignment was in the Charleston Public Schools. The writer has accepted a position as head track and assistant football coach at Iowa Wesleyan College.