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A COMPARISON OF FOUR METHODS OF SOCCER THROW-INS

(TITLE)

BY

Joseph Edward Donnelly

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF

Master of Science in Physical Education

IN THE GRADUATE SCHOOL, EASTERN ILLINOIS UNIVERSITY
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1972
YEAR

I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING
THIS PART OF THE GRADUATE DEGREE CITED ABOVE

September 11, 1972
DATE

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Chapter 1

INTRODUCTION

The most popular spectator sport in the world is soccer, however, the sport does not have high spectator appeal in the United States. International competition has shown the United States far behind the rest of the world in soccer skills and knowledge. In recent years, soccer has experienced rapid growth which has resulted in a lack of trained, experienced coaches. Scientific investigation is important to advance the present level of knowledge and improve the general skill level of soccer players. For this reason the writer has investigated various methods for achieving greater distance in the throw-in.

PURPOSE OF THE STUDY

The purpose of the study was to compare four methods of soccer throw-ins: stationary, run and stop, run and drag, and run and fall, to determine which is most effective.

Hypothesis

The hypothesis for this study stated that there would be no significant difference among the four methods of soccer throw-ins.

NEED FOR THE STUDY

Soccer has received limited research in comparison with other sports. If knowledge of the game is to increase, scientific investigation should lead the way. The throw-in is of offensive importance, yet few studies have investigated the possible methods and the effectiveness of each. If a significant difference does exist, it would be of importance to coaches and players alike. Hubert Vogelsinger of Yale University stated that an alert coach will realize that throwing a ball onto the field of play not only starts the game again, but is a good means of initiating a purposeful attack.[1]

John McKeon, Irvin Schmid and Melvin Schmid agreed with Vogelsinger and emphasized that the team awarded the throw-in would have possession and control over how, where, and when the ball is to be played.[2]

Utter mentioned that the soccer throw-in could be used as an effective offensive weapon, especially around the goal area, if a player could develop distance and accuracy.[3]

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[1]Hubert Vogelsinger, Winning Soccer Skills and Techniques (West Nyack: Parker Publishing Co., 1970), p. 191.

[2]John McKeon, Irvin Schmid, and Melvin Schmid, Skills and Strategies of Successful Soccer (Englewood Cliffs: Prentice Hall, 1968), p. 214.

[3]William Utter, "The Throw-in as an Offensive Threat," Soccer Journal, XI (October, 1967), pp. 22-3.

Bobby Moore, a professional player and coach from England, stated that teams in Europe do not pay enough attention to the throw-in and do not realize the tactical advantage to be gained from a long throw-in. The author further stated that perhaps it will be proven that not enough attention has been given to the throw-in, since it makes up one-sixth of the game's playing time.[4]

DELIMITATIONS

The study was conducted at Eastern Illinois University, Charleston, Illinois. Forty male volunteers from the physical education classes served as subjects. Four groups were established randomly, with ten subjects in each group. Group A used the stationary method, Group B the run and stop method, Group C utilized the run and drag method, and Group D performed the run and fall method.

The experiment was conducted during the spring quarter of the 1971-72 academic year and was prefaced by a pilot study. The investigation involved two phases. Phase I was an instructional and practice stage, and Phase II was the testing period.

The study was conducted indoors in the Charles P. Lantz Physical Education and Recreation Building.

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[4]Bobby Moore, Soccer The Modern Way (London: Stanley Paul, 1967), p. 66.

DEFINITION OF TERMS

Throw-in

A throw-in is the legal way a ball is put back into play from the touch-line. Yonker defined a throw-in as follows:

> The thrower at the moment of delivering the ball must face the field of play and part of each foot shall be either on the touch-line or on the ground outside the touch-line. The thrower shall use both hands equally and shall deliver the ball from behind and over his head. The ball shall be in play immediately as it is thrown, but the thrower shall not play the ball until it has been touched or played by another player. A goal shall not be scored directly from a throw.[5]

Methods of throw-ins. Each of the following four methods was performed in accordance with the laws governing the soccer throw-in:

1. The stationary throw involved a square stance, and no linear foot movement either before or after the throw-in was completed.

2. The run and stop method demanded linear movement because several approach steps were taken before the ball was delivered from a stationary square stance.

3. The run and drag throw involved a running start and finished by dragging the trail foot instead of stopping upon release.

4. The run and fall method demanded a running approach and finished by dragging both feet behind the body as the momentum carried the body to the ground.

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[5]Donald Yonker (ed.), The 1971 Official NCAA Soccer Guide (Phoenix: College Athletics Publishing Service. 1971), pp. 18-9.

Chapter 2

REVIEW OF RELATED LITERATURE

In 1964 the throw-in came back to America after an absence of fourteen years. The kick-in had been used as a means of speeding up the game to increase spectator appeal. Immediately the problem of how to coach the throw-in arose because everyone had adapted to the kick to restart play. Some coaches recognized the importance of the throw-in and hoped it could be developed into an offensive weapon. John McKeon and Melvin Schmid stated that a long throw which is directed into the mouth of the goal is sure to be a threat. In order to generate this type of offensive threat, an exceptional throw is required.[6]

There has been little literature published which compared different methods of throw-ins, and the laws that govern them. The literature has been presented in three categories: the mechanics and laws of the soccer throw, material concerning tests and measurements, and publications that compare methods of soccer throw-ins.

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[6] John McKeon, and Melvin Schmid, "The Offensive Use of the Throw-in," Athletic Journal, XLV (October, 1964), p. 41.

THE MECHANICS AND LAWS OF THE SOCCER THROW-IN

According to many authorities the easiest and most basic throw-in is the stationary method. John McKeon and Melvin Schmid have described the total sequence as follows:

> The player picks up the ball, places his hands with the fingers spread on the back surface of the ball at the horizontal axis. He approaches the touch-line, making sure he is on or behind the line. As he comes to a stationary position, he swings both arms over his head to a position behind his head and neck. At the same time the player flexes his knees and arches his trunk backwards toward his hands. Then the player begins his forward thrust. He extends his knees vigorously while swinging his trunk forward at the hips. The momentum of this action will cause him to rise up on his toes. His arms swing forward forcefully in an arc over his head, completing the act with a powerful snap of the wrists and releasing the ball directly in front of the head at approximately eye level. [7]

Frank DiClemente gave a similar explanation of the throw and emphasized total body action with special attention to the follow-through. The author realized that throws for distance are prefaced by a running approach. He listed the following six rules of thumb to govern the throw:

> 1. Except for the long throw, the ball should never be lobbed. It should be thrown directly to a spot where the intended receiver can handle the ball with his foot.
>
> 2. The thrower should hide his intent as long as he possibly can to keep the edge or advantage that the offensive team has gained from possession.

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[7] John McKeon, Irvin Schmid, and Melvin Schmid, Skills and Strategies of Successful Soccer (Englewood Cliffs: Prentice-Hall, 1968), p. 80.

3. The thrower is like the quarterback on a football team, since, after quickly sizing up the situation, he decides what is the best thing to do with the ball.

4. Look for open spots.

5. Take advantage of the strengths of your own teammates and consider the weaknesses of the opponents. In doing so take into account the size, speed, and abilities of your own teammates and those of your opponents.

6. Size up quickly whether or not the opponents are playing a tight man-to-man defense or a zone defense, and then set up accordingly.[8]

The stationary throw was briefly discussed by Boehm. He was concerned with the position of the hands, ball, and feet during the throw. Boehm mentioned the rule that stated a goal cannot be scored directly from a throw-in.[9]

Coyer covered the mechanics of the throw and stated that the direction of the throw should be disguised until the last possible moment.[10]

Hupprich described the technique of the stationary throw and said that momentum is achieved by using the arms and wrists to the greatest advantage.[11]

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[8]Frank DiClemente, Soccer Illustrated For Coach and Player (2d ed.; New York: Ronald Press Co., 1969), pp. 171-77.

[9]Edward Boehm, "Perfecting the Soccer Fundamentals," Athletic Journal, L (May, 1964), p. 92.

[10]Hubert Coyer, The Coaching of Soccer (Philadelphia: W. B. Saunders Co., 1937), pp. 105-7.

[11]Florence Hupprich, Soccer and Speedball for Girls (New York: A. S. Barnes and Co., 1942), p. 20.

The Navy Aviation Training Manual described the stationary throw-in with a staggered stance. The Manual stated that a long throw spreads the defense and thus adds to the importance of the throw.[12]

Bobby Moore, a player, coach, and author described the mechanics of the hands, feet, trunk, and release. Moore emphasized the importance of strong stomach muscles. He also noted that a player cannot be offside on a throw-in.[13]

Walter Winterbottom gave attention to the staggered stationary throw, the stationary throw, and the run and drag method of throwing. The author realized that a throw may initiate an attack, especially if a player is able to throw 35 yards or more. The stationary throw was used for shorter throws but for a throw of 35 yards or more, the run and drag method was recommended.[14]

An explanation of the run and drag method and stationary method was presented by Howard Goldman. The stationary method emphasized the final flick of the wrists, while the run and drag method

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[12]The Navy Aviation Training Manual (Annapolis: United States Naval Institute, 1943), p. 53.

[13]Bobby Moore, Soccer the Modern Way (London: Stanley Paul, 1967), pp. 66-9.

[14]Walter Winterbottom, Soccer Coaching (London: The Naldrett Press Ltd., 1952), pp. 129-135.

pointed out the importance of dragging the trail foot to ensure ground contact. Goldman discussed hand and foot violations that included raising the foot and throwing with one hand only.[15]

E. R. Slade reviewed the rules governing the hands, feet, and release of the ball during the throw. He stated that all players should be familiar with the throw-in and also mentioned that players are allowed to run up before delivering the ball.[16]

Hubert Vogelsinger gave extensive coverage to the area of throw-ins. The laws governing throws, the skills and techniques needed for accuracy and distance, and the intellectual and psychological readiness for a strategic throw were presented. Vogelsinger felt the following four procedures were necessary for a long throw:

1. The ball must be held with the fingers spread comfortably.

2. The ball should be thrown with one foot behind the other to provide counter balance and maximum waist extension.

3. A run-up is necessary to increase linear velocity to the ball. Vogelsinger described the run-up as follows:

> A run-up is essential to increase linear velocity which can be transferred to the ball. A skip-step is taken as the approach is made to allow for greater movement, delay the checking of the lead foot, and allow the thrower to adjust the

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[15]Howard Goldman, Soccer, Allyn & Bacon Series in Basic Concepts of Physical Activity (Boston: Allyn & Bacon, Inc., 1969), pp. 32-3.

[16]E. R. Slade (ed.), Soccer Coaching Manual for Schools and Colleges (Toronto: Dominion Football Association, 1965), p. 11.

stride to avoid committing a foot fault. Velocity is increased through flexion of the hips and trunk, extension of the humerous, and a final flip of the wrists. The proper release angle for maximum distance is approximately 45 degrees.[17]

4. The entire action of the player must be coordinated into one whole movement.

TESTS AND MEASUREMENTS FOR THE SOCCER THROW-IN

Accuracy and distance are the two main elements of the throw-in and several people have devised ways to test the players. Melvin Schmid and John McKeon developed a test for accuracy that utilized circles six feet in diameter placed varying distances and angles from the throwing point. To test for distance, tongue depressors were placed in the ground where the ball made contact. The longest throw was recorded. Foul throws were not recorded but did not count as a throw.[18]

Mildred Vanderhoof devised a test to measure both distance and accuracy. Baseball bags were placed three, five, and seven yards from the touch-line. Five throws were taken in an attempt to hit one of the bags. Points increased as the distance of the bags increased. Illegal throws were not counted.[19]

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[17]Hubert Vogelsinger, Winning Soccer Skills and Techniques (West Nyack: Parker Publishing Co., Inc., 1970) pp. 191-201.

[18]John McKeon and Melvin Schmid, "The Throw-in is Back," Athletic Journal, XLV (September, 1964), p. 12.

[19]Mildred Vanderhoof, "Soccer Skills Test," Journal of Health, Physical Education, and Recreation, III (October, 1932), p. 42.

A battery of tests was constructed by Marjorie Heath and Elizabeth Rodgers to evaluate soccer skill. The battery included a test to measure the soccer throw-in. The target was a circle six yards from the touch-line, two feet in diameter. Another circle four yards in diameter was constructed around the two-foot circle. Each person was awarded ten stationary throws. Two points were awarded for a ball landing in the inside circle and one point for the outside circle.[20]

COMPARISON OF THROW-IN METHODS

Chunkwun Wun compared a run and stop type throw to a run and drag type throw-in to determine which method would give the best performance in terms of distance and accuracy. The subjects were fifteen varsity college soccer players. The results showed that the run and drag throw produced greater distance without sacrificing accuracy.[21]

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[20]Marjorie Heath and Elizabeth Rodgers, "A Study in the Use of Knowledge and Skill Tests in Soccer," Research Quarterly, III (December 1932), p. 35-6.

[21]Chunkwun Wun, "A Comparison of Methods of Executing the Throw-in in Soccer," Completed Research in Health, Physical Education, and Recreation, XII (AAHPER, 1968), p. 53.

Jeffrey Vennel investigated the hop-step and stationary soccer throws at two selected distances. Two classes served as subjects with the order of instruction alternated. The test consisted of two target circles four feet in diameter. One circle was placed a distance of twenty-two and one-half feet and another circle was placed forty-five feet from the thrower. Vennell reported no significant difference in accuracy between the two methods at either distance. However, the hop-step method produced significantly longer throws than the stationary method.[22]

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[22]Jeffrey Vennell, "A Comparison of the Hop-step and Straddle Soccer Throw-ins at Two Selected Distances," Completed Research in Health, Physical Education, and Recreation, X (AAHPER, 1968), p. 53.

Chapter 3

METHODOLOGY

The study was conducted to determine if any significant difference existed among criterion scores of four methods of soccer throw-ins. The four methods included the stationary method, run and stop, run and drag, and the run and fall method. Many prominent coaches have stated that the throw-in may be valuable as an offensive weapon, however, little research has been completed to determine what method is most effective. For this reason the writer investigated the throw-in.

The study covered a period of eight weeks and was prefaced by a pilot study. The experiment was conducted in the field house of the Charles P. Lantz Physical Education and Recreation Building. The writer felt weather conditions outside might increase the chance of uncontrollable variables and lessen the reliability of the study.

RESEARCH PROCEDURES

Subjects

The subjects for the experiment were forty male volunteers from the physical education classes at Eastern Illinois

University. The subjects were all undergraduates and were not members of the varsity soccer team.

Grouping

The forty volunteers were randomly divided into four groups of ten members each, representing the four different throw-in techniques. Group A performed the stationary method, Group B utilized the run and stop method, Group C was assigned the run and drag method, and Group D performed the run and fall method of soccer throw-in.

Testing Area

The testing area was established by creating a soccer field touch-line and a permissible area of throw. The touch-line was the edge of a Nissen tumbling mat. The permissible area of throw was designated by marking the field house floor with chalk lines. The lines had one yard between them at the touch-line and angled apart so that they were six yards wide thirty yards from the touch-line. The throwing surface was covered with sawdust to facilitate the measuring process. A mat of artificial turf was placed behind the touch-line which provided a running surface and allowed the subject a five-yard run in the methods which demanded preliminary movement. The test was designed to represent a boundary line and desirable area of throw similar to a soccer field.

A throw of thirty yards would reach the goal mouth on a soccer field. The distance of six yards was chosen because it is the distance between the end line and the goal box. Five yards were allowed for the run-up because, in many cases, a longer run would have been impossible. It is generally accepted that when a player is able to throw a ball thirty yards into the six-yard area of the goal box that a serious scoring threat has been created. Shorter throws would require greater accuracy to be effective and therefore the tapering design was chosen for the permissible area of throw.

Testing Phases

The test procedure contained two phases. The first phase was an instructional and practice period while the second phase was the testing period.

Phase I. Prior to the instruction period, all subjects were given a warm-up consisting of fifteen jumping jacks, fifteen sit-ups, ten push-ups, thirty seconds of arm circles, and thirty seconds of stomach rocking. The warm-up was designed to promote general body circulation and to stretch the stomach, arms, and back to prepare for throwing and prevent injury.

Group A was designated to perform the stationary method of throw-in. Each subject was instructed to pick up a ball and place the hands with the fingers spread on the back surface of the ball at the horizontal axis. He approached the touch-line, making certain

to be on or behind it. As the subject came to a stationary position, both arms were swung over the head to a position behind the head and neck. At the same time, he flexed the knees and arched the trunk backwards toward the hands. When the subject started the forward motion, he extended the knees vigorously while swinging the trunk forward at the hips. The momentum of this action caused him to rise on the toes. The arms were swung forcefully in an arc over the head, and completed the act with a powerful snap of the wrists. The ball was released directly in front and on top of the head. Full back and arm extension were emphasized to ensure a maximum throw.

Group B performed the run and stop method of throw-in. Each subject was instructed to pick up a ball and place the hands, with the fingers spread, on the back surface of the ball at the horizontal axis. The subject approached the touch-line by taking several rapid steps. As he approached the touch-line, both arms were swung over the head to a position behind the head and neck. At the same time, the knees and trunk were arched backward toward the hands. As the subject met the touch-line he stopped to extend the knees vigorously and swung the trunk forward at the hips. The momentum of this action caused him to rise on the toes. The arms swung forward forcefully in an arc over the head, and completed the act with a powerful snap of the wrists. The ball was released directly in front of the head at approximately eye level. Care was taken to ensure that each subject was

stopped and that the feet were parallel when the ball was released. The subjects were encouraged to take a long last step to ensure greater backward extension.

Group C utilized the run and drag throw-in. Each subject was asked to pick up a ball and place the hands with the fingers spread on the back surface at the horizontal axis. The subject approached the touch-line by taking several running steps. When he neared the touch-line a skip step was executed while both arms were swung over the head to a position behind the head and neck. At the same time, the subject flexed the knees and arched the trunk backward toward the hands. As the touch-line was met the knees were extended vigorously and the trunk swung forward at the hips. The momentum of the action caused the subject to rise on the lead foot while the back foot was dragged to maintain contact with the ground to avoid a violation. The arms swung forward forcefully in an arc over the head, and completed the act with a powerful snap of the wrists. The ball was released directly in front of and over the head. Emphasis was placed on maintaining rear foot contact with the ground and throwing equally with both hands.

Group D performed the run and fall method of soccer throw-in. Each subject was asked to pick up a ball and place the hands with the fingers spread on the back surface of the ball at the horizontal axis. He approached the touch line by taking several run-

ning steps. When the subject neared the line, a skip-step was executed while both arms were swung over the head to a position behind the head and neck. At the same time the knees were flexed and the trunk was arched toward the hands. As the touch-line was met, the subject accelerated forward and extended the knees vigorously while he swung the trunk forward at the hips. The momentum of the action caused him to fall forward and drag the feet behind in contact with the ground to prevent violation. The arms swung forcefully in an arc over the head, and completed the act with a powerful snap of the wrists. The ball was released over or behind the head to ensure maximum distance. The momentum went unchecked as the subject fell to the ground. Considerable attention was given to maintaining foot contact with the ground. The fall allowed the momentum of the subject to go unchecked. The investigator emphasized that the fall was a continuation of the follow-through, and not a result of a forward lunging motion.

All the groups were cautioned against possible hand and foot violations. Hand violations occurred when a throw was made with one hand or when the subject failed to follow through with both hands. Foot violations included failure to maintain ground contact or when a subject crossed the touch-line when attempting a throw.

The subjects were allowed to practice after the instruction period and individuals received attention when needed. When the

investigator felt a subject was performing the throw-in correctly he was dismissed.

Phase II. Prior to the testing period all subjects were given a warm-up identical to the warm-up in the first phase and were allowed to take a maximum of six practice throws. The test consisted of ten throws that landed inside the permissible area of throw and conformed to the laws governing the legality of throw-ins. There was no penalty for the throws that did not conform to the above two conditions, however, they were not recorded. The throws were marked from the closest impression made in the sawdust which covered the throwing area. An assistant aided the investigator in measuring and recording the throws. A calibrated one hundred yard tape was used to measure the distance to the nearest inch. The distances were rounded to the nearest one-half foot to facilitate the computations.

Treatment of the Data

All the computations were completed on the computer at Eastern Illinois University. The mean, mean difference, and standard deviation were determined for each of the four throw-in groups. Each group was compared with the other groups and the difference in the mean scores between the groups was tested by using the t-ratio. The .05 level of confidence was considered the level necessary for a significant difference to exist.

Chapter 4

ANALYSIS AND INTERPRETATION OF THE DATA

The study was conducted to determine if any significant difference existed among four methods of soccer throw-ins. The subjects were forty male volunteers from the physical education classes at Eastern Illinois University, and they were randomly divided into four groups containing ten members. Each group performed one method of throw-in, and all subjects were awarded ten throws. Measurements were recorded for throws that landed in the permissible area and conformed to the rules governing the legality of the soccer throw-in.

The study was completed in two phases. Phase I consisted of a learning and practice period. This phase was continued until each subject could perform the throw-in by utilizing one of the four methods. Phase II was the testing session and each throw was measured to the nearest inch. To facilitate the computation of the data, the distances were rounded to the nearest one-half foot. The t-ratio was the statistic utilized to compare the groups.

RESULTS OF PHASE II

The four groups were labeled A, B, C, and D which identified the four methods of throw-ins included in the study. Group A represented the stationary method, Group B the run and stop method, Group C the run and drag method, and Group D the run and fall method of throw-in.

The scores for each subject have been placed in the Appendix. The mean difference among the four groups has been presented in Table 1. A t-ratio of 2.101 was necessary to be statistically significant at the .05 level of confidence for eighteen degrees of freedom. Five of the six comparisons made among the four groups showed a significant difference.

Group Comparisons

Group B had a mean score of 63.36 feet, which was significantly higher than Group A with a mean score of 58.00 feet. The t-ratio of 5.56 was significant at the .05 level of confidence.

Group C, with a mean of 66.75 feet, proved greater than the mean of Group A which was 58.00 feet. The t-ratio of 10.74 revealed a significant difference at the .05 level of confidence.

The t-ratio of 10.24 proved significant at the .05 level of confidence when Group D, with a mean of 67.95 feet, was compared to Group A, with a mean of 58.00 feet.

Table I

Comparison of the Mean Scores Among the Stationary (A), Run and Stop (B), Run and Drag (C), and Run and Fall Throw-ins (D).

	MEAN DISTANCE	MEAN DIFFERENCE	T-RATIO
Group A	58.00		
Group B	63.36	5.36	5.56*
Group A	58.00		
Group C	66.75	8.75	10.74*
Group A	58.00		
Group D	67.95	9.95	10.24*
Group B	63.36		
Group C	66.75	3.39	2.52*
Group B	63.36		
Group D	67.95	4.59	4.19*
Group C	66.75		
Group D	67.95	1.20	1.23

* Significant at the .05 level

The mean score of 66.75 feet for Group C proved significantly greater than the mean of 63.36 feet evidenced by Group B. A significant difference at the .05 level of confidence was revealed by the t-ratio of 2.52.

Group D had a mean score of 67.95 feet which was significantly higher than Group B with a mean of 63.36 feet. The t-ratio of 4.19 was significant at the .05 level of confidence.

A comparison between Group D and Group C showed no significant difference at the .05 level of confidence. Group D had the higher mean with a score of 67.95 feet, while Group C had a mean of 66.75 feet. The t-ratio revealed a score of 1.23.

DISCUSSION AND SUMMARY

As shown in Figure 1, the lowest mean occurred in the stationary method and the means increased as more linear momentum was allowed. Figure 2 shows a comparison between mean scores. The greatest distance between means occurred when Group A was compared to Groups B, C and D. This would indicate that Group A produced the shortest throws and represented the least effective method of throw-in. The greatest difference between the means was 9.95 feet when Group A was compared to Group D. The smallest mean difference was 1.20 feet, which occurred between Group C and Group D.

The lowest t-ratio occurred between the methods with similar application of linear velocity. Group C and Group D showed a

t-ratio of 1.23, the only group comparison that did not prove significant at the .05 level of confidence. The highest t-ratio occurred between a method utilizing no linear velocity, the stationary throw-in, and the run and drag method, which utilized linear velocity.

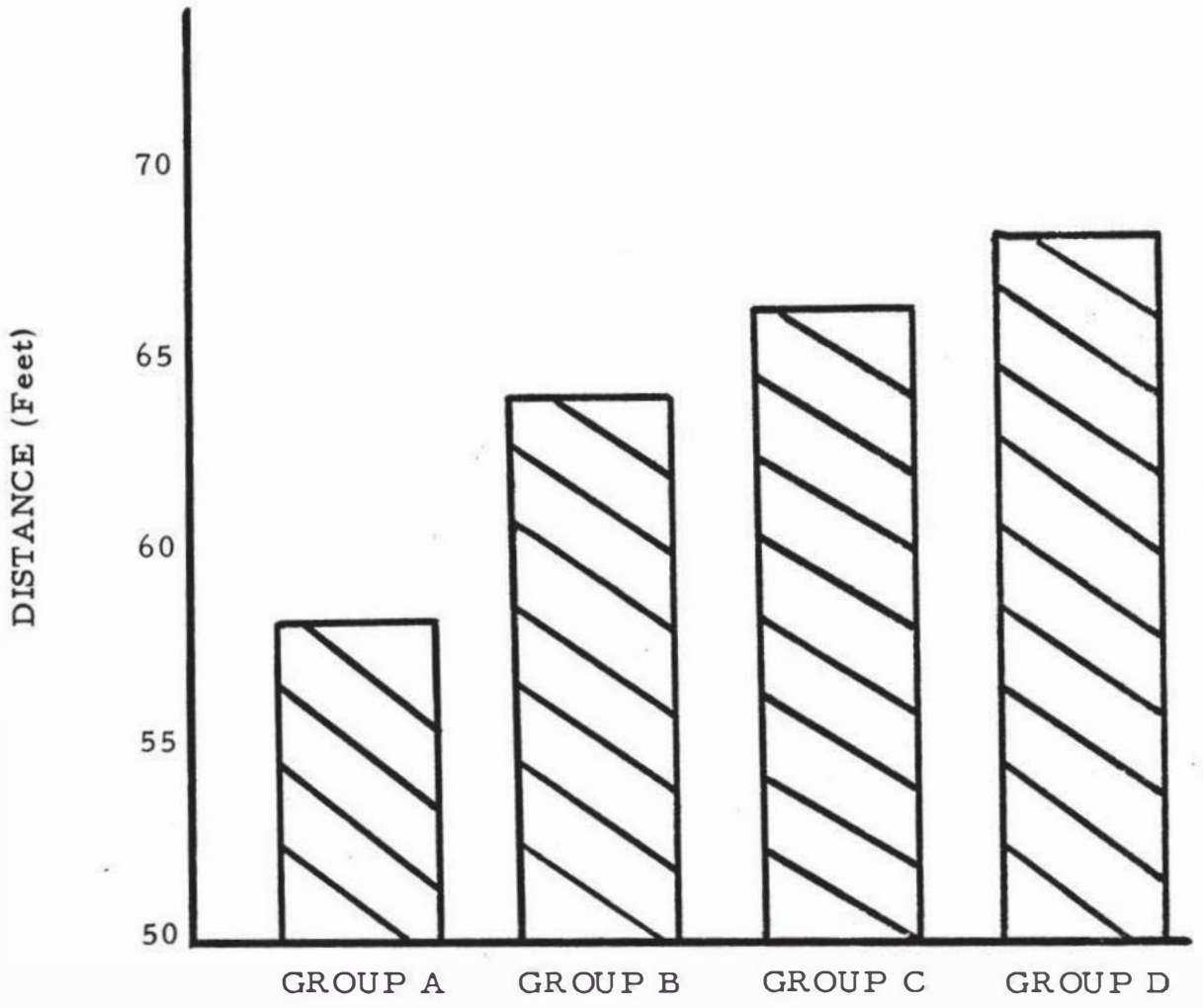

Figure 1

Mean Distances of the Stationary (A), Run and Stop (B), Run and Drag (C), and Run and Fall (D) Throw-ins

Figure 2

Comparison of the Mean Distances Between the Stationary (A), Run and Stop (B), Run and Drag (C), and Run and Fall (D) Throw-ins

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The study was conducted to investigate the effectiveness of four methods of soccer throw-ins. Forty male volunteers of physical education classes at Eastern Illinois University served as subjects. The subjects were randomly divided into four groups of ten and each group performed a different method of throw-in. The four methods were: 1) stationary, 2) run and stop, 3) run and drag, and 4) run and fall.

The study covered a period of eight weeks and involved two phases of experimentation. Phase I consisted of an instructional and practice period. Each subject, after he was assigned to one of the groups, received instructions on how to perform the throw-in. The throw was practiced until the subject became proficient with the throw-in procedure.

Phase II was the actual testing period. Each subject was allowed ten throw-ins using the throwing technique he was taught. The testing was arranged so the throws conformed to the laws of the soccer throw-in. To arrange for testing in a soccer setting, an area

similar to the six-yard area at the goal mouth was designated as the permissible area of throw. The subjects were not penalized for a throw which did not conform to the above two conditions. However, those throws were not recorded or counted as one of the ten throws.

CONCLUSIONS

The following conclusions, based upon the findings of this study, appear to be justified:

1. The hypothesis that there were no significant differences among the four methods of throw-ins is rejected.

2. The run and drag and the run and fall methods of soccer throw-ins are superior to the stationary and the run and stop methods.

3. The run and stop method is superior to the stationary method which is the poorest technique.

4. The distance for the throw-in is greater when the technique used employs a greater range of movement to increase the velocity of the ball.

RECOMMENDATIONS

Based on the findings of the study the following recommendations are made:

1. A study should be conducted to determine the effectiveness of the four methods at various ages and skill levels.

2. A study should be completed to determine which method of soccer throw-in will produce a throw of maximum distance with the least possibility of violation.

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APPENDIX

Table 2

Throw-in Results of the
Stationary Group
(Feet)

Throw	WC	JB	MJ	JB	DJ	BD	DH	JD	SL	TH
1	56	63	48.5	63.5	53	62	60.5	52	51.5	55
2	48.5	67	51	62.5	59	57	60	58.5	53.5	58.5
3	51	62.5	49	62	54	58.5	64.5	60	51	58
4	57.5	63.5	52	64.5	59.5	65.5	64	55.5	51.5	53
5	61	65.5	49.5	64.5	56.5	60.5	62	61	52	54.5
6	54.5	64	52	62.5	57	63.5	63	53	53	53
7	53	65.5	53	63.5	57.5	57	59	54	51.5	50
8	54.5	63	50	66.5	59.5	60	60.5	57.5	53.5	52
9	62	63	54	69	57.5	59	61	62.5	56.5	56.5
10	59	63.5	52	65	59.5	58.5	64.5	61	53.5	61

Table 3

Throw-in Results of the
Run and Stop Group
(Feet)

Throw	HF	AS	MD	MG	TL	MP	TM	ML	PR	JS
1	53.5	49	70.5	61	57	68.5	64.5	65	54.5	66
2	54.5	53.5	67	60	55	66	61	75.5	55.5	70.5
3	52	51	65	67	61	71	66	76	54	67
4	54	58.5	68	66	61.5	67.5	65.5	72.5	56	60
5	53	54	73.5	65	60.5	68.5	68	76	56.5	70
6	54	54	77	64	60	63.5	63	80	57	63.5
7	54.5	53.5	78.5	66	61	63.5	63	72.5	59	70
8	53	56	73.5	70	58	66.5	70.5	76.5	60.5	68
9	56	51.6	68	62	59	62	64.5	70	59	70.5
10	55.5	43.5	72.5	63	67.5	70	66	79.5	60	72.5

Table 4

Throw-in Results of the
Run and Drag Group
(Feet)

Throw	TH	RM	AF	DS	RB	BS	FE	KJ	CF	NG
1	57	71.5	54	78	72	59	69.5	72.5	59.5	79
2	67.5	70.5	44	80	72	56	62	67	61.5	82.5
3	66.5	70	48	80	70.5	56.5	66	73	63	78
4	66	68	46.5	74	75.5	59	62.5	72	67.5	78.5
5	64	72	51.5	66	74	54.5	62.5	73	62	77.5
6	62	70	50	82	71.5	61	63.5	74	59	63
7	68	71.5	45.5	74	68.5	57	64.5	73	60.5	86
8	70	71	45	70.5	69	56	68	77	64	76
9	69.5	77.5	49.5	77.5	73	57.5	64.5	77	58.5	81
10	69	74.5	47.5	69	73	59	67.5	74	67	65

Table 5

Throw-in Results of the
Run and Fall Group
(Feet)

Throw	MK	EW	JD	SS	BB	RC	RP	KK	CM	RV
1	50.5	73.5	68.5	66.5	76.5	50.5	72.5	69	59	82
2	65	69	66.5	71.5	78.5	50.5	68.5	63.5	63.5	83
3	67	74	58.5	67.5	79	45	70	66	66	85.5
4	72	61	59.5	66	75.5	48.5	72	66.5	66.5	83
5	64	68	69	66	81	51.5	69	65.5	65.5	85
6	60.5	74	65.5	62	75	47.5	64	65.5	65	79
7	67.5	54	65	66.5	79.5	49.5	73	64	64	80.5
8	69	70.5	64	60	80	46.5	77	70.5	70	77
9	64	75	68.5	61.5	74.5	51.5	76	64	64	82
10	66.5	71	70	60	77	52	77.5	68	67.5	81.5

VITA

JOSEPH EDWARD DONNELLY

Joseph Edward Donnelly was born November 19, 1949 in New York, New York. His childhood was spent in North Caldwell, New Jersey, where he attended the public school system. He received his diploma from West Essex Regional High School in June of 1967. While attending West Essex he captained the soccer, basketball, and baseball teams. The soccer team won two state championships and he was awarded all-county honors.

In the fall of 1967 he enrolled at Davis and Elkins College and participated in soccer and tennis. The soccer team won the NAIA National Championship in 1968 and 1970. He was awarded All-South and All-Conference honors. In June of 1971 he received a Bachelor of Arts degree.

In the fall of 1971 he accepted a graduate assistantship in physical education at Eastern Illinois University in Charleston, Illinois. While at Eastern he served as assistant soccer coach and as a supervisor of intramurals. After graduation from Eastern he accepted a position as head soccer coach at Blackburn College.