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AN INVESTIGATION OF PRETESTING INDIVIDUALS AS A MEANS
OF BALANCING THE COMPARATIVE STRENGTHS OF
LITTLE LEAGUE FOOTBALL TEAMS

by

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CHAPTER 1

INTRODUCTION

One of the basic arguments against organized little league athletic programs is that each boy participating does not receive an opportunity to succeed, nor does each boy play an equal amount. Every attempt must be made in such a program to insure that each boy is placed in a position where he feels he has achieved some success during the program.

The study discussed in this paper was instigated by the formation of a little league football program in Rawlins, Wyoming, to commence in September, 1971. The program was to consist of six teams made up of fifth and sixth grade level boys. Part of the formation of this program was to devise a method by which boys could be equitably placed on teams, thereby providing each boy with the greatest possible chance of success.

Purpose of Study

The purpose of this study was to see if the following questions could be satisfactorily answered.

- (1) Can team performance be predicted by a pretest of individual members?
- (2) Can an individual's ability in football be predicted by a pretest?
- (3) Does a pretest of individuals lead to a balance of team strength as reflected in statistics of team offense and defense?

Limitations of Study

The scoring system for the skill-fitness pretest was based on a controlled study of that test but because of the unavailability of national norms in this area a more desirable method could not be used. A second limitation of this study is the lack of investigation into the effects of the variances in the coaching staffs and their influence upon the outcome of the season.

CHAPTER 2

METHOD OF STUDY

The first stage of the study was to determine the method by which team personnel would be selected. The second part was to compile statistics of the season. The final task was to correlate the results of the season to the method of selection.

The method of selecting team personnel was to be a physical skill-fitness test. The compiled statistics for the season included individual yards rushed from scrimmage, individual passing and receiving statistics, individual punting and kicking-off yardage and returns. Team statistics were then figured from individually collected statistics. Correlation of season statistics to the pretest were then figured according to percentile rankings of individual boys in relation to their success as ball carriers, passers, receivers or kickers. Correlations between team success in various categories, such as team rushing, team passing, etc., and pretest scores were also made.

CHAPTER 3

RESULTS AND DISCUSSION

Formation of the Pretest

The value of one player to a football team is affected by several qualities. Among the more important of these are:

- (1) physical size
- (2) strength
- (3) endurance
- (4) agility
- (5) speed for short distance
- (6) skill ability
- (7) experience
- (8) knowledge of football
- (9) attitude toward competition.

A pretest to equalize team strengths would most likely be more reliable if it included consideration of this entire list, but due to the need for economical use of time and other factors, which are shortly noted, it was decided that the pretest for this study would be limited to four of these areas: strength, agility, speed for short distances, and skill ability.

Since this is a new program and this age group had not had the opportunity to participate in organized football, it was felt that experience, knowledge of football, and attitude toward competition would not provide a great enough variance in scores to be of value. A study by Kenneth Tillman

indicates that tests of a physical fitness nature may correlate to tests of personality traits.¹ Attitude tests may then have given us the same results as the tests which were given. Physical size was not considered as a pretest because it was felt that the correlation between physical size and the test that was given would be high. Also a great degree of variation in size was not expected due to consistency in the ages of the boys as a result of the local school district's policy to make all possible efforts not to retain students in any given grade level in the elementary schools. A test of endurance was left out of the pretest simply as a means of economizing on time.

A pretest was then formed to test strength, agility, speed for short distances, and skills in football. The test for speed was to be a 50 yard dash. The test for agility was a 30 yard backward run. Punting for distance and throwing for distance and accuracy were to test strength and skills in football. It was felt that a test of such nature could be conducted for an expected 130 boys within the space of one and one-half hours.

The scoring of the pretest was the next consideration. Cumulative scores would be used to place boys on the teams. Each event was assigned the same maximum score of 100 points, with the greatest possible cumulative score being 400. Individual event scores would then be figured by using a subtractive system from the maximum.

In order to correlate the point system to local conditions, eighteen boys were given the test. These eighteen boys were recommended by the two local elementary school physical education instructors as being the most

¹Kenneth Tillman, "Relationship Between Physical Fitness and Selected Personality Traits," The Research Quarterly of AAHPER, XXXIV (December, 1965), 488.

likely to produce the best scores on such a test. (Ten boys were recommended by each instructor, but only the eighteen were available for testing.) This method of devising the scoring was used because it was desired that the norms be a reflection of this locale. It was hoped that correlation between the pretest and statistics of the season could more readily be proven significant or negligible.

The procedure for testing the eighteen boys was to be the same as for the group of applicants to the program. The 50 yard dash was run twice by each boy, with the better time used in scoring. The boys ran in pairs. Each boy was timed by stop watch. The 30 yard backward run was conducted in the same manner as the 50 yard dash. Each boy punted for distance three times with the longest distance used in scoring. All boys had to punt from behind a given line, but were not given any restrictions on how far behind that line they could begin their approach. Distance was measured from a common point to the point where the ball took its first bounce. Measurements were recorded to the nearest foot. Aid in the form of instruction was given only to boys who missed or nearly missed the ball in their first attempted punt. During the pass for distance and accuracy each boy also had three attempts. Each boy threw from behind a given line in an attempt to throw as far as possible and hit a line perpendicular to the line from which he threw. No restrictions were placed on the length of a boy's approach. Distance for the throw was measured along the target line. Accuracy was measured by perpendicular distance to the target line. Both distance and accuracy were dependent upon the first bounce of the ball. Measurement was recorded to the nearest foot for distance and the nearest foot for accuracy.

Figure 1 is a graph showing the distribution of the scores of the

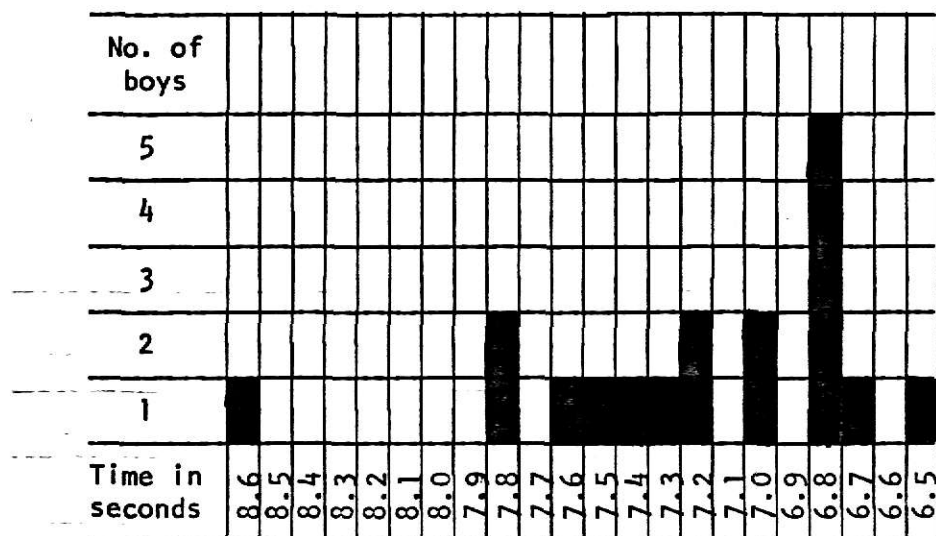


Fig. 2.--Distribution of scores of 18 selected boys in 30 yard backward run.

Figure 3 shows the scores of the selected 18 boys in the punt for distance. The range was 72 feet; the median 69 feet; the mean 68 feet; and the standard deviation was 17 feet.

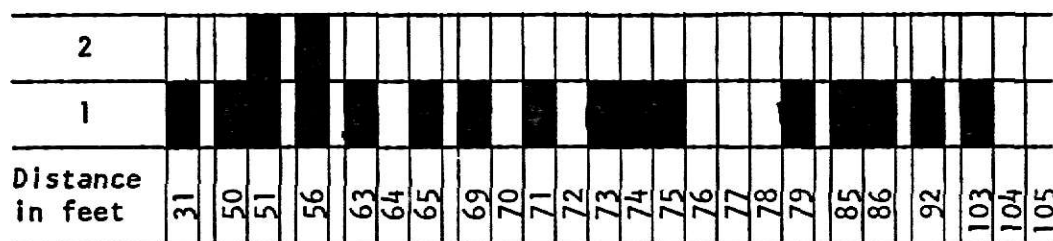


Fig. 3.--Distribution of scores of 18 selected boys in the punt for distance.

The maximum score of 100 points was then set at 102 feet for the punt for distance. One hundred and two feet is equal to the mean plus two times the standard deviation. The scoring table (Appendix C) was then based upon subtracting one point for each foot less than 102 feet. The minimal score of 3 feet is approximately 3.8 deviants below the mean.

The pass for distance and accuracy, unlike the other events, had two variables. Testing 18 boys for distance of their longest throw provided a range of 36 feet, a median score of 77 feet, a mean score of 72 feet, and a standard deviation of 4.7 feet. The accuracy measurement scored on the longest throw provided a range of 17 feet, a median of 3 feet, a mean of 5.5 feet, and a standard deviation of 4.7 feet.

Figure 4 shows the score of the 18 selected boys. The score recorded is that score which gave the greatest possible difference between the distance and accuracy measures when the three attempts of each boy were considered.

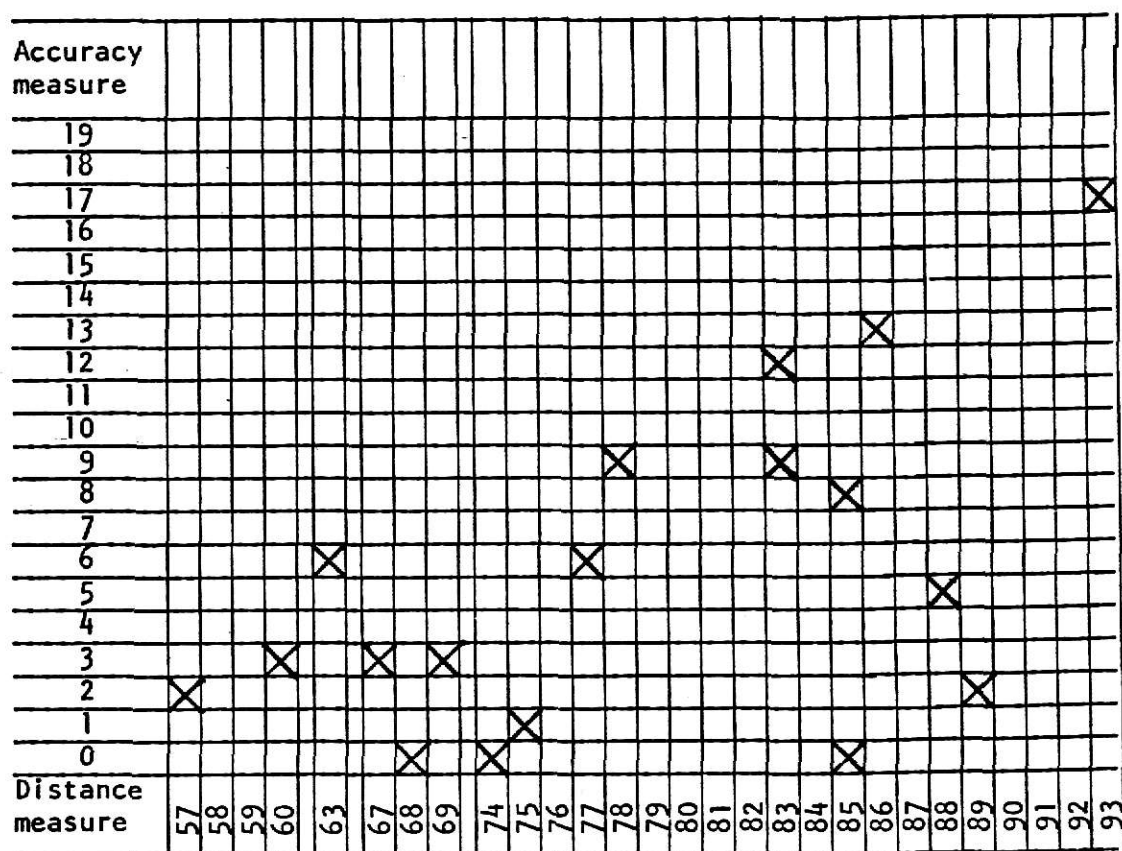


Fig. 4.--Distribution of scores of 18 selected boys in the pass for distance and accuracy.

With this in mind, the range was 32 feet, the median was 72 feet, the mean was 71 feet, and the standard deviation was 9 feet.

It was decided that scores for this event would be based upon subtracting the accuracy from the distance and giving each boy his best overall attempt. The maximum score of 100 points was then set at 89 feet for the pass for distance and accuracy. Eighty-nine feet is equal to twice the standard deviation plus the mean. The scoring table (Appendix D) was then based upon subtracting three points for each foot short of 89 feet. The minimal score of 2 points for a throw rated 40 feet is approximately 3.5 deviants below the mean.

In scoring, it was felt that two basic things should be accomplished. First, each event should carry as closely as possible the same weight on the pretest. This was accomplished by setting the maximum of 100 points in the same manner for each event: two times the standard deviation of the selected 18 boys from the mean of that group. Second, all boys should score some points in order that they could be ranked. The minimal scores do not reflect an equalization of events as indicated by deviants of 3.5, 3.8, 4.5, and 5.5 from the mean, but minimal deviants being high would insure that all boys would receive a cumulative score greater than zero. It may have been noted also that only for the test, pass for distance and accuracy, were scores equal or above the 2.5 deviants used to set maximum scores actually scored by any of the selected 18 boys. In this event of the test, therefore, it was expected that some of the boys would score the maximum 100 points, while in the other events this expectation could not be nearly as great.

With the scoring system set, the next step was to give the boys who were to be placed on teams the pretest of four events. After ranking the boys

according to their cumulative scores, they would be placed on teams by the following series: 1, 2, 3, 4, 5, 6, 6, 5, 4, 3, 2, 1, 1, . . . until all boys were assigned to a team. The only exception to this was to be that boys whose father would be a coach would not be assigned to their father's team. This was decided by a vote of the coaches. (As the ranking turned out, this exception did not alter team placement of any boys.) Boys who were not able to be pretested were placed in alphabetical order at the bottom of the ranking.

The pretest was given within two hours to 118 boys. A total of twelve persons administered the test--six adults and six high school age boys. The test was given the last week of the school year, approximately three months before competition was to begin. The 18 selected boys were retested as part of this group. The results of this test can be seen in Appendix E. Since equalization of scoring was an objective considered in creating the scoring system, the distribution of each score was figured on a percentage basis, as shown in Figure 5.

The Season and Team Rosters

During the season each team was to play eight games. Two of the games were shortened, one by weather and one by another scheduled use for the field, and one game was cancelled due to cold weather. Statistics in team offense, team defense, and individual offense resulting from the play of the games are shown in Appendices F, G, and H, respectively. The won-lost records of the teams are as follows:

	won	lost
Colts	7	1
Falcons	6	2
Steelers	4	3
Broncos	3	4
Cowboys	2	6
Cardinals	1	7

Number of
Boys

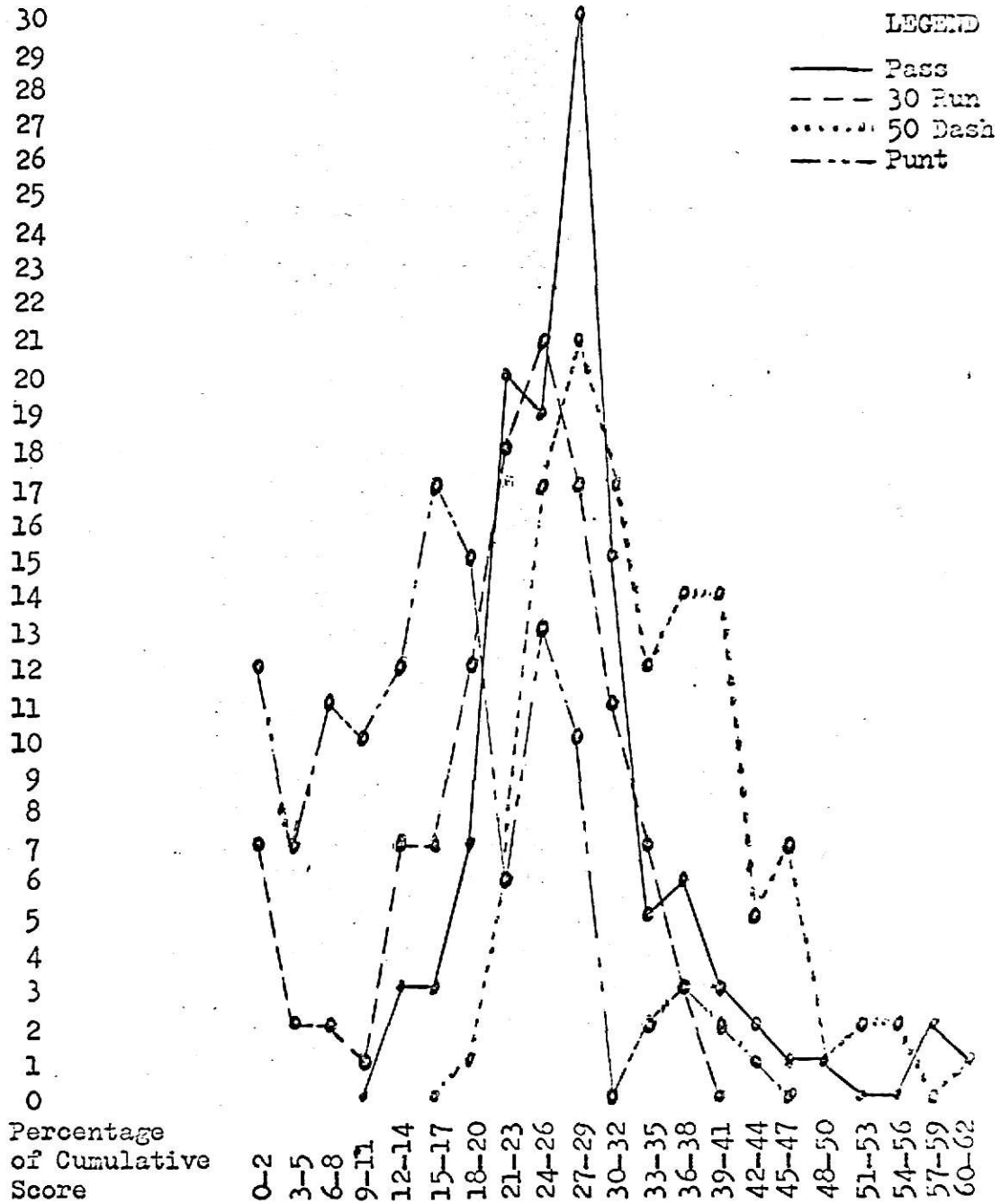


FIGURE 5

PERCENT OF CUMULATIVE SCORE
SCORED BY EACH EVENT

The rosters of each team were very near the rosters assigned due to the pretest. Some boys did quit, others moved, and some played who had not been pretested. The Colts at season's end had 18 players. Of these, 17 had pretest scores and one did not. From their pretest roster, two boys had dropped. The team's point total according to individual scores on the pretest for their preseason roster was to be 4,218 or an average of 222.00 for the 19 assigned boys. The post season total was 3,862, or a per boy average of 227.18, not including the boy with no score in this computation.

The Cardinals at season's end had 18 players. Of these, 17 had been pretested and again one had not. This team's total points according to the preseason roster was to be 4,219, or a per boy average of 222.05. The post season total was 3737, or an individual average of 219.82. Again the boy with no score was not figured into this average.

The Cowboys' post season roster included 19 players. There were 19 out of 20 assigned by pretest. The total points scored on the pretest by members of this team should have been 4,251 for a 212.55 average. The second highest scoring man on the assigned roster did not play; therefore, the post season total was 3,936, with a 207.16 man average.

The Steelers were assigned 20 players with a preseason test total of 4,242, a per man average of 212.50. The post season roster of the Steelers included 19 of the pretested boys and one with no score. They also did not have their second highest assigned man. The total score for the 19 was then 3906. The average for the 19 was 205.58.

The Broncos had a preseason assigned strength of 4,247 for 20 boys. This is an average of 212.35 per boy. The Broncos lost two boys from the preseason roster and gained one without a score. The total for the 18 boys of

their post season roster who had scores was 3,991. This is an average per man score of 221.72.

The Falcons were assigned a roster which accumulated 4,246 points on the pretest. The average for their 20 boys was then 212.30. At the end of the season the Falcons had a roster of 21 boys. They had not lost any boys but had gained one who had not been pretested. This left their point totals at the same level as the preseason roster.

Comparisons of Team Point Totals to Season Results

The preseason roster totals and averages, as previously mentioned, would rank the teams in the following orders.

Team	Total	Team	Average
Cowboys	4251	Colts	222.00
Broncos	4247	Cardinals	219.82
Falcons	4246	Cowboys	212.55
Steelers	4242	Steelers	212.50
Cardinals	4219	Broncos	212.35
Colts	4218	Falcons	212.30

The post season rosters, not including scores for boys who had not been pretested, would rank the teams in the following orders.

Team	Total	Team	Average
Falcons	4246	Colts	227.82
Broncos	3991	Broncos	221.72
Cowboys	3936	Cardinals	219.82
Steelers	3906	Falcons	212.30
Colts	3862	Cowboys	207.16
Cardinals	3737	Steelers	205.58

A comparison of the above various rankings to the ranking of the teams by won-lost records, Table 1, helps show the reliability of the pretest in predicting team success.

A comparison of the average score per man of the post season rosters to some of the game statistics is shown in Table 2.

TABLE 1

COMPARISON OF TEAM WON-LOST RECORD TO VARIOUS
RANKINGS OF TEAMS ACCORDING TO PRETEST SCORES

Team rank won-lost record	Post season roster's average	Post season roster's total	Preseason roster's average	Preseason roster's total
Colts	1	5	1	6
Falcons	4	1	6	3
Steelers	6	4	4	4
Broncos	2	2	5	2
Cowboys	5	3	3	1
Cardinals	3	6	2	5

TABLE 2

COMPARISON OF POST SEASON ROSTER'S AVERAGE SCORE
TO RANKING OF VARIOUS GAME STATISTICS

Team rank Post season average	Rank by rushing yardage	Rank by rushing average	Rank by passing yardage	Rank by total offense	Rank by offense ave/play	Rank by defense ave/play
Colts	1	1	3	1	1	1
Broncos	5	4	1	4	4	4
Cardinals	4	5	6	5	5	5
Falcons	2	3	4	2	3	3
Cowboys	6	6	2	6	6	6
Steelers	3	2	5	3	2	2

The individual events of the pretest can be considered if the average score for each team is figured for each of the events. Table 3 shows the comparison between final team standings according to won-lost records and the rank of the teams by average scores of the individual events. This average score was figured on the post season rosters of the teams, considering only boys who had been pretested.

TABLE 3
COMPARISON OF WON-LOST RANKING TO
INDIVIDUAL EVENTS OF THE PRETEST

Team rank won-lost record	Average 50 yd. dash	Average 30 yd. run	Average punt	Average pass
Colts	2 (8.06)	2 (7.71)	2 (61.47)	2 (60.76)
Falcons	3 (8.08)	3 (7.88)	6 (52.80)	3 (58.00)
Steelers	5 (8.25)	6 (8.06)	4 (59.32)	4 (56.53)
Broncos	4 (8.22)	4 (7.94)	5 (56.44)	1 (60.94)
Cowboys	6 (8.38)	5 (7.94)	3 (61.26)	6 (53.00)
Cardinals	1 (7.88)	1 (7.28)	1 (62.24)	5 (53.77)

The range for team average 50 yard dash was only 0.34 seconds, which is approximately 4.3% of the fastest team's average time. The range for the team average in the 30 yard backward run was 0.78 seconds, which is 10.7% of the fastest team average time in that event. The range for the punt for distance was 9.44 feet, 15.2% of the best team average. The range for the team averages in the pass for distance and accuracy was 7.94 feet, 13.0% of the best team average.

Comparisons of Individual's Pretest Scores to Game Statistics

Let us now consider the ball carriers (Appendix H) and make comparisons with the total 118 boys pretested. In rushing, the lowest ranked boy to carry the ball five or more times was ranked 70 with a composite score of 201. Ball carriers could then be said to come from the top 59% of the pretest scores and all ball carriers scored more than 200 points on the pretest. The next low ranking for ball carriers was 45, which is at the 38th percentile of the pretest scores. Each team was represented on the individual rushing chart with five boys, except the Cardinals who had four.

Taking the top two rushers for each team according to average per carry, total yards gained, and number of carries, the boys in each of these cases were in the top 34% of the pretest scores. The overall top 12 rushers according to all three categories, excluding one boy with no pretest score, were also in the top 34%. The top five rushers in each category were in the top 17% of the pretest scores.

Considering the top ten boys ranked by pretest scores, 80% were ball carriers with five or more carries. Of the top twenty, 70% were ball carriers, and of the top thirty, 40%.

Of the ten boys who ran the 50 yard dash the fastest, 60% were ball carriers with five or more attempts. Only 40% of the fastest twenty boys in the 50 yard dash became ball carriers. Of the 22 boys who ran the 30 yard backward run the fastest, only 36% became ball carriers. Four of the top nine were ball carriers. In the punt for distance, 57% of the top 21 performances on the pretest later were ball carriers. Ninety percent of the best ten and 80% of the best twenty scores in the pass for distance and accuracy were made by boys who became ball carriers. Of the thirty best in the pass, 67% later

had at least five carries during the games. Table 4 shows the percentiles of ball carriers when the individual events of the pretest are considered separately.

TABLE 4
PERCENTILES OF BALL CARRIERS WITH 118 SCORES
RANKED FOR INDIVIDUAL PRETEST EVENTS

Group	Percentiles			
	50 yd. dash	30 yd. run	Punt	Pass
All ball carriers	69	86	78	57
Top 2 each team				
Ave. per carry	69	86	78	25
Total yardage	69	86	78	44
No. of carries	69	86	51	52
Top 12 carriers				
Ave. per carry	69	86	78	31
Total yardage	69	86	78	31
No. of carries	69	86	78	52
Top 5 carriers				
Ave. per carry	69	42	59	23
Total yardage	69	86	27	23
No. of carries	69	86	27	18

Since relatively few passes were thrown during the games, comparisons of the passers to rankings on the pretest will not be as conclusive as those made on ball carriers. Five boys did throw the ball at least five times during the season, and did have some completions (Appendix H). The lowest ranked by pretest of these was 21 with a score equal to 275. This is in the top 17% of the pretest scores. The other four boys ranked 5th, 10th, 12th, and 17th.

On the pretest individual events the five passers were in the top 30% for the 50 yard dash, only the top 86% for the 30 yard backward run, 37% for the punt, and 31% for the pass. From the pretest the two boys who threw the farthest did become passers, but the others were ranked below 7th in this event.

Receivers of passes ranked at least in the upper 52% of the pretest scores. Their ranking in the individual events was the upper 61% of the 50 yard dash, the upper 56% of the 30 yard backward run scores, the upper 78% of the punt for distance scores, and the upper 28% of the pass for distance and accuracy scores.

Kicking is divided into two categories statistically--punts and kick-offs. The lowest ranked boy to do either of these in a game was ranked 87th in the pretest. The lowest ranked boy to do both types of kicking was 16th. Only six boys did both, and one of these was not pretested. Number 87 represents the upper 73% of pretest scores, number 16 the upper 13%. Table 5 shows the percentiles of three groups in kicking for individual events of the pretest.

For the single event of punt for distance, only 38% of the top 21 scores later kicked the ball in a game.

TABLE 5
 PERCENTILES OF KICKERS WHEN 118 SCORES ARE RANKED
 FOR INDIVIDUAL EVENTS OF THE PRETEST

Group	Percentiles			
	50 yd. dash	30 yd. run	Punt	Pass
All punters	69	75	48	52
All kick-off men	92	86	64	45
Men who both punted & kicked-off	56	35	11	21

CHAPTER 4

SUMMARY AND CONCLUSIONS

Question 1. Can team performance be predicted by a pretest of individual members?

A pretest formed to test speed, agility, strength, and football skill can be formed with approximately equal weight in scoring placed upon each of the events of that pretest. The cumulative score of such a pretest for all boys on a team does not appear to be an accurate indication of the predictable success of that team for boys just beginning football at this age level. The test given in this study did predict the top team by record when the average score of the boys on that team was compared with the average score of other teams, but no measure of predictability could be derived from the pretest given and the method of selecting team personnel.

Question 2. Can an individual's ability in football be predicted by pretest?

This study indicates that backfield men come from the top 60% of an accumulative score of the four events. The boys who perform with the greatest success as runners will probably be in the top 40%. Individual events of the pretest did not give as specific results as these; therefore, a test of one event could not be used to predict possible ball carriers.

Question 3. Does a pretest of individuals lead to a balance of team strength as reflected in statistics of team offense and defense?

The statistics of the season did not indicate that the method of deter-

mining the team rosters was successful in balancing those teams. Average scores of the boys placed on each team for each of the events of the pretest did indicate balance for those areas tested. Individual statistics on the season did show that all teams had nearly the same number of players who became ball carriers.

CHAPTER 5

RECOMMENDATIONS

The pretest and scoring of the pretest in this study are based upon an "experimental" group of boys. The need to adjust the scoring, especially in certain areas, may well arise as more scores become available. The scoring should not be taken as any kind of norm to be used in other situations.

If little league football programs are to prove that they afford a balance in the chances of all boys to participate, then they must base team personnel selection upon some statistical information and not random selection. It is therefore recommended that further study of pretests and scoring be conducted. Also, records of individual boys' playing time should be compared to the results of the pretest. This investigation would be of value in placing individual boys equitably.

It is also recommended that any pretest results not be made available to little league coaches. These tests should not become screening mechanisms for the coaches and should never be used to label boys, but should have only the purpose of equalizing team rosters.

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APPENDICES

APPENDIX A
SCORING TABLE FOR 50 YARD DASH

Time	Points	Time	Points	Time	Points
Faster than 6.6	100	8.3	66	10.2	28
6.6	100	8.4	64	10.3	26
6.7	98	8.5	62	10.4	24
6.8	96	8.6	60	10.5	22
6.9	94	8.7	58	10.6	20
7.0	92	8.8	56	10.7	18
7.1	90	8.9	54	10.8	16
7.2	88	9.0	52	10.9	14
7.3	86	9.1	50	11.0	12
7.4	84	9.2	48	11.1	10
7.5	82	9.3	46	11.2	8
7.6	80	9.4	44	11.3	6
7.7	78	9.5	42	11.4	4
7.8	76	9.6	40	11.5	2
7.9	74	9.7	38	11.6	0
8.0	72	9.8	36	Slower than 11.6	0
8.1	70	9.9	34		
8.2	68	10.0	32		
		10.1	30		

APPENDIX B

SCORING TABLE FOR 30 YARD BACKWARD RUN

Time	Points	Time	Points	Time	Points
Faster than 6.2	100	7.3	67	8.6	28
6.2	100	7.4	64	8.7	25
6.3	97	7.5	61	8.8	22
6.4	94	7.6	58	8.9	19
6.5	91	7.7	55	9.0	16
6.6	88	7.8	52	9.1	13
6.7	85	7.9	49	9.2	10
6.8	82	8.0	46	9.3	7
6.9	79	8.1	43	9.4	4
7.0	76	8.2	40	9.5	1
7.1	73	8.3	37	Slower than 9.5	0
7.2	70	8.4	34		
		8.5	31		

APPENDIX C

SCORING TABLE FOR PUNT FOR DISTANCE

Distance in feet	Score	Distance in feet	Score	Distance in feet	Score
Greater than 102	100	70	68	34	32
		69	67	33	31
		68	66	32	30
		67	65	31	29
102	100	66	64	30	28
101	99	65	63	29	27
100	98	64	62	28	26
99	97	63	61	27	25
98	96	62	60	26	24
97	95	61	59	25	23
96	94	60	58	24	22
95	93	59	57	23	21
94	92	58	56	22	20
93	91	57	55	21	19
92	90	56	54	20	18
91	89	55	53	19	17
90	88	54	52	18	16
89	87	53	51	17	15
88	86	52	50	16	14
87	85	51	49	15	13
86	84	50	48	14	12
85	83	49	47	13	11
84	82	48	46	12	10
83	81	47	45	11	9
82	80	46	44	10	8
81	79	45	43	9	7
80	78	44	42	8	6
79	77	43	41	7	5
78	76	42	40	6	4
77	75	41	39	5	3
76	74	40	38	4	2
75	73	39	37	3	1
74	72	38	36	2-1	0
73	71	37	35		
72	70	36	34		
71	69	35	33		

APPENDIX D

SCORING TABLE FOR PASS DISTANCE AND ACCURACY

Adjusted distance	Score	Adjusted distance	Score
Greater than 89	100	63	48
89	100	62	46
88	98	61	44
87	96	60	42
86	94	59	40
85	92	58	38
84	90	57	36
83	88	56	34
82	86	55	32
81	84	54	30
80	82	53	28
79	80	52	26
78	78	51	24
77	76	50	22
76	74	49	20
75	72	48	18
74	70	47	16
73	68	46	14
72	66	45	12
71	64	44	10
70	62	43	8
69	60	42	6
68	58	41	4
67	56	40	2
66	54	Less than 40	0
65	52		
64	50		

APPENDIX E

RESULTS OF TESTS

Rank	Cumulative Score	50 yd. dash	30 yd. run	Punt dist.	Pass dist.	Team assigned
1	350	7.2	6.7	83	87	Colts
2	348	6.6	6.2	84	72	Cardinals
3	341	7.5	6.6	81	85	Broncos
4	330	7.0	7.1	85	80	Steelers
5	324	7.8	7.0	86	83	Falcons
6	318	7.5	7.1	83	75	Cowboys
7	315	7.5	6.7	70	79	Cowboys
8	314	7.1	6.7	51	84	Falcons
9	306	8.4	7.3	91	82	Steelers
10	304	7.6	7.5	65	93	Broncos
11	302	7.7	7.4	86	77	Cardinals
12	301	7.6	7.6	81	81	Colts
13	290	8.5	7.5	71	88	Colts
14	287	7.5	7.8	85	74	Cardinals
15	284	7.8	7.4	90	67	Broncos
16	283	8.2	7.1	80	71	Steelers
17	280	7.5	7.3	57	77	Falcons
	280	7.2	7.1	75	62	Cowboys
	280	7.5	7.0	64	69	Cowboys
20	276	8.0	7.3	59	79	Falcons
21	275	7.6	8.8	75	96	Steelers
	275	7.8	7.3	72	67	Broncos
23	274	7.8	7.2	80	64	Cardinals
	274	7.4	7.0	72	61	Colts
25	272	8.3	7.2	70	73	Colts
26	271	7.5	6.8	75	56	Cardinals
27	270	8.5	8.4	78	88	Broncos
28	268	8.7	7.3	71	76	Steelers
29	264	8.0	7.3	78	62	Falcons
30	263	8.5	7.5	76	72	Cowboys
	263	8.0	8.1	74	77	Cowboys
32	261	7.5	7.4	77	59	Falcons
33	258	7.0	7.3	75	52	Steelers
34	256	7.7	7.0	62	60	Broncos
35	254	7.6	7.2	76	54	Cardinals
36	252	8.1	6.9	51	66	Colts
	252	8.2	7.5	59	72	Colts
38	249	8.0	6.5	78	46	Cardinals
39	248	8.0	7.4	78	57	Broncos
40	246	7.5	7.3	55	61	Steelers
41	244	8.0	7.3	47	69	Falcons
	244	7.8	7.6	58	66	Cowboys
43	243	8.3	7.4	75	59	Cowboys

APPENDIX E--Continued

Rank	Cumulative Score	50 yd. dash	30 yd. run	Punt dist.	Pass dist.	Team assigned
44	241	7.6	6.8	59	50	Falcons
45	238	7.3	7.7	71	53	Steelers
46	237	8.0	7.5	60	62	Broncos
47	233	7.5	7.0	53	51	Cardinals
48	230	7.3	8.2	66	59	Colts
	230	8.6	7.1	63	57	Colts
	230	8.0	7.3	63	54	Cardinals
51	229	7.9	7.4	51	60	Broncos
52	226	7.6	7.9	69	54	Steelers
53	225	9.5	8.0	57	80	Falcons
54	222	8.0	7.6	52	60	Cowboys
	222	7.5	7.0	50	47	Cowboys
	222	7.4	7.5	59	48	Falcons
57	219	8.8	7.5	60	61	Steelers
58	214	7.5	8.0	56	55	Broncos
59	213	8.0	7.4	61	48	Cardinals
	213	8.7	8.4	81	60	Colts
61	208	8.5	7.3	39	60	Colts
62	206	7.0	7.2	46	36	Cardinals
	206	9.0	8.0	58	65	Broncos
64	205	8.0	8.2	75	49	Steelers
	205	8.3	7.3	48	52	Falcons
66	204	8.9	7.4	68	49	Cowboys
	204	8.9	7.5	63	53	Cowboys
68	202	7.0	8.6	60	51	Falcons
	202	8.8	8.3	63	63	Steelers
70	201	7.8	7.6	57	45	Broncos
	201	8.2	8.4	65	57	Cardinals
72	200	8.5	7.9	75	47	Colts
	200	8.0	7.6	38	56	Colts
74	199	7.6	7.1	48	38	Cardinals
75	198	8.1	9.0	66	63	Broncos
76	197	7.9	7.9	53	50	Steelers
	197	7.8	7.1	30	49	Falcons
	197	7.6	7.5	38	49	Cowboys
79	196	8.2	7.3	63		Cowboys
80	192	7.8	7.6	60	37	Falcons
81	188	7.8	6.9	27	43	Steelers
82	185	8.3	7.9	36	57	Broncos
83	184	8.0	8.6	62	51	Cardinals
84	183	8.1	8.3	70	43	Colts
85	180	7.4	8.1	63	44	Colts
	180	8.2	7.7	45	46	Cardinals
87	179	9.5	8.1	66	54	Broncos
88	178	8.5	8.1	73	40	Steelers
	178	8.3	8.4	50	54	Falcons

APPENDIX E--Continued

Rank	Cumulative Score	50 yd. dash	30 yd. run	Punt dist.	Pass dist.	Team assigned
90	175	8.2	8.4	49	52	Cowboys
	175	8.1	8.5	56	48	Cowboys
92	174	8.5	8.1	27	61	Falcons
93	173	8.9	7.3	30	51	Steelers
94	170	8.6	7.3	39	42	Broncos
95	167	9.1	8.4	57	63	Cardinals
96	164	8.3	7.6	36	42	Colts
	164	8.0	8.3	45	45	Colts
98	162	8.4	8.8	46	55	Cardinals
99	161	8.5	11.0	59	60	Broncos
100	157	8.9	8.4	51	49	Steelers
101	151	7.9	8.5	36	44	Falcons
102	149	8.5	8.6	61	34	Cowboys
103	146	9.7	9.0	60	56	Cowboys
104	144	8.3	8.7	43	45	Falcons
105	139	8.5	9.4	51	51	Steelers
106	137	8.6	8.3	42	31	Broncos
107	135	8.0	8.2	25	37	Cardinals
108	134	9.0	8.9	45	49	Colts
109	126	9.0	9.4	58	46	Colts
110	124	8.8	9.0	54	32	Cardinals
111	102	10.2	9.0	48	45	Broncos
112	94	9.2	9.1	27	43	Steelers
113	87	9.6	9.7	45	41	Falcons
114	84	10.0	9.5	53	34	Cowboys
115	66	10.8	10.8	40	45	Cowboys
116	65	9.6	11.0	27	29	Falcons
117	60	10.3	11.6	36	31	Steelers
118	50	10.5	10.3	16	41	Broncos

APPENDIX F

TEAM OFFENSIVE STATISTICS

Rushing			
Team	Total plays	Total yardage	Average/play
Colts	148	1070	7.23
Steelers	130	730	5.62
Falcons	147	776	5.28
Broncos	101	482	4.77
Cardinals	126	524	4.15
Cowboys	133	420	3.16

Passing					
Team	Total attempts	Incomplete	Intercepted	Complete	Total yardage
Broncos	24	15	3	6	93
Cowboys	9	4	2	3	55
Colts	5	2	1	2	45
Falcons	7	5	0	2	19
Steelers	7	3	2	2	1
Cardinals	1	1	0	0	0

Total offense			
Team	Total plays	Total yardage	Average/play
Colts	153	1115	7.29
Steelers	137	731	5.41
Falcons	154	795	5.16
Broncos	125	575	4.60
Cardinals	127	524	4.13
Cowboys	142	475	3.35

Touchdowns

Colts	18
Falcons	11
Steelers	7
Broncos	5
Cowboys	5
Cardinals	2

APPENDIX G

TEAM DEFENSIVE STATISTICS

Against the rush			
Team	Total plays	Yardage gained	Average gain
Colts	119	385	3.24
Falcons	112	441	3.94
Broncos	127	658	5.18
Steelers	128	721	5.63
Cardinals	129	791	6.13
Cowboys	123	776	6.31

Passes intercepted by:

Colts	2
Steelers	2
Cowboys	2
Broncos	1
Falcons	1
Cardinals	0

Touchdowns scored against:

Colts	3
Falcons	5
Steelers	9
Cardinals	10
Cowboys	10
Broncos	11

Kicking

Team	Number of punts	Average/ punt	Number of kick-offs	Average/ kick-off
Cardinals	6	24.17	10	21.60
Broncos	9	22.00	12	21.75
Falcons	7	21.57	19	22.26
Cowboys	10	21.30	13	20.00
Colts	6	17.33	26	19.73
Steelers	5	16.40	15	18.07

APPENDIX H

INDIVIDUAL STATISTICS

Team	Boy's pretest		Rushing (Five or more carries)		Average/ carry
	rank	score	Carries	Total yardage	
Falcons	17	280	8	103	12.88
Broncos	21	275	24	257	10.71
Colts	1	350	42	391	9.31
Colts	13	290	49	405	8.27
Cardinals	2	348	43	336	7.81
Steelers	21	275	87	641	7.37
Falcons	41	244	28	199	7.11
Cowboys	17	280	21	139	6.62
Colts	No score		20	120	6.00
Falcons	5	324	40	223	5.58
Broncos	3	341	30	140	4.67
Falcons	20	276	36	141	3.92
Falcons	8	314	26	99	3.81
Cowboys	41	244	6	20	3.33
Colts	12	301	30	99	3.30
Steelers	4	330	5	16	3.20
Broncos	39	248	7	22	3.14
Cowboys	6	318	54	147	2.72
Steelers	No score		17	43	2.53
Cardinals	11	302	19	45	2.37
Cardinals	70	201	24	56	2.33
Cowboys	17	280	31	68	2.13
Cowboys	30	263	8	17	2.13
Steelers	45	238	7	14	2.00
Broncos	10	304	20	32	1.60
Cardinals	35	254	30	47	1.57
Steelers	16	283	13	17	1.31
Broncos	27	270	11	6	0.55
Colts	25	272	5	-1	-0.20

APPENDIX H--Continued

Passing

Team	Boy's pretest rank -- score	Attempt passes	Incomplete	Intercepted	Complete	% of comp.
Cowboys	17 280	7	2	2	3	42
Colts	12 301	5	2	1	2	40
Falcons	5 324	7	5	0	2	28
Steelers	21 275	7	3	2	2	27
Broncos	10 304	16	11	2	3	18
Cardinals	2 348	1	1	0	0	0
Cowboys	102 149	2	2	0	0	0

Receiving

Team	Boy's pretest rank -- score	Passes caught	Total yds. gained	Average/ catch
Colts	25 272	2	45	22.50
Broncos	62 206	3	56	18.67
Cowboys	17 280	3	55	18.37
Broncos	34 256	1	15	15.00
Falcons	41 244	1	12	12.00
Broncos	21 275	2	22	11.00
Falcons	29 264	1	7	7.00
Steelers	4 330	2	2	1.00

Kicking

Punts

Team	Boy's pretest rank -- score	No. of punts	Total yardage	Average/ punt
Cowboys	6 318	9	188	20.89
Falcons	5 161	7	161	23.00
Cardinals	11 302	5	120	24.00
Colts	No score	6	104	17.33
Broncos	15 284	3	71	23.67
Steelers	16 283	4	62	15.50
Broncos	46 237	2	50	25.00
Broncos	27 270	2	50	25.00
Broncos	21 275	2	27	13.50
Cardinals	35 249	1	25	25.00
Cowboys	17 280	1	25	25.00

APPENDIX H--Continued

Kick-offs

Team	Boy's pretest rank -- score	No. of kicks	Total yardage	Average/ kick
Falcons	5 324	19	433	22.79
Colts	No score	20	353	17.65
Cowboys	6 318	13	260	20.00
Cardinals	11 302	7	160	22.86
Steelers	16 283	6	138	23.00
Broncos	34 256	5	125	25.00
Broncos	15 284	5	100	20.00
Steelers	21 275	5	93	18.60
Colts	1 350	3	80	26.67
Colts	13 290	3	74	24.67
Cardinals	70 201	3	56	18.67
Steelers	40 246	3	52	17.33
Broncos	87 179	1	20	20.00
Broncos	58 214	1	16	16.00

AN INVESTIGATION OF PRETESTING INDIVIDUALS AS A MEANS
OF BALANCING THE COMPARATIVE STRENGTHS OF
LITTLE LEAGUE FOOTBALL TEAMS

by

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This study was instigated by the formation of a little league football program and the necessity to provide each boy with an equitable chance of success. It was necessary to devise a system in which boys of the fifth and sixth grade levels could be placed on teams without the injustices which could result from a random selection.

The procedure followed was to develop a physical skill-fitness test and scoring system, collect statistics from the games played, and attempt to prove equality in team strengths by correlating those statistics to the pre-test scores. It was felt that this could be done by answering three questions:

- (1) Can team performance be predicted by a pretest of individual members?
- (2) Can an individual's ability in football be predicted by a pretest?
- (3) Does a pretest of individuals lead to a balance of team strength as reflected in statistics of team offense and defense?

Each boy who was planning to participate in the football program was pretested in these four events: 50 yard dash, 30 yard backward run, pass for distance and accuracy, and punt for distance. The scoring for the pretest was developed by figuring norms from testing a selected group of 18 boys. A scoring table for each event was figured by placing a maximum 100 point value on a score equivalent to twice the standard deviation from the mean score of the 18 boys. By placing the maximum score in this manner, it was hoped that events would have equal weight in the cumulative pretest score.

Each boy who took the pretest was ranked according to his cumulative score and then teams were selected by placing the top six boys on different teams, the next six by reversing the order of teams selecting the top six, the

next six by reversing the order again, and so on.

The point total according to individual scores on the pretest was figured for each team's preseason and postseason rosters. A per boy average was also figured for each team for both rosters. Comparison charts were then made showing the relationship between these figures and the rankings of the teams by various game statistical information.

Comparisons were then made between individuals' pretest scores and game statistics. This was done by figuring the percentile ranking of an individual's pretest score if he became a ball carrier, passer, receiver, or kicker in a game. Comparisons were also made in this same manner to the individual events of the pretest.

The result of these comparisons was that no reliable measure of predictability of team success could be derived from the pretest given and the method of selecting team personnel. An individual's ability in football can not be predicted by the pretest, but persons who are most likely to become the most successful runners will probably be in the top forty percent of the pretest scores. The cumulative score of an individual gave more specific results than an individual event of the pretest. Finally, the statistics of the season did not indicate that the method used to determine team rosters was successful in balancing the teams.