

A COMPARATIVE STUDY OF THE PHYSICAL FITNESS OF  
FIFTH AND SIXTH GRADE BOYS IN SELECTED  
ELEMENTARY SCHOOLS OF NORTH PLATTE  
PUBLIC SCHOOL SYSTEM

by

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## PART I

### INTRODUCTION

Never before in history has an entire nation mastered its environment sufficiently to free itself for the fullness of life in all of its aspects. It is no longer necessary for man to devote his entire life to the basic task of keeping himself alive. Since man has utilized the forces of nature, he is free to engage in creative activities.

Man has always had to be continuously active in the protection of his home, procuring his food, expressing his worship and waging combat. By nature man is a dynamic not sedentary creature.

Even though man has always been active, radical changes in his civilization have tended to decrease his activity. There is profound concern for modern man because of the press-button gadgets and other devices tending toward habits of inactivity. Because of the mechanization and material wealth of today, the school and home need to compensate for this immobility imposed upon society. The lack of walking, working, and using bodies for exercise are increasing the conditions for soft living.<sup>1</sup> It was President John F. Kennedy who reminded us that: "There is an increasingly large number of Americans who are neglecting their bodies--whose physical fitness is not what it should be--who are getting soft."<sup>2</sup>

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<sup>1</sup>Victor P. Dauer, Fitness for Elementary School Children, (Minnesota: Burgess Publishing Co., 1965), p. 2.

<sup>2</sup>AAHPER, Your Child Can't Sit and Keep Fit, (Washington, D.C.: National Education Association).

Along with man's highly civilized society he has devised new means to protect himself against disease. In order to survive as an individual and with his group he must use modern knowledge and techniques from the health sciences.

Good health is a solid foundation for fitness. Man must be free from disease; have enough strength; agility endurance, and skill to meet the daily demands of living; sufficient reserves to withstand strain; and be mentally and socially adjusted.<sup>3</sup>

Modern man is confronted with a critical choice. He either includes valid health information and vigorous physical activity in his life or he suffers inevitable losses. An established fact today is that physical fitness is an essential quality for anyone who has the desire to make the most of himself and his life. It is evident that physically fit persons lead longer lives, have better performance records and participate more fully in life than those who are unfit.<sup>4</sup>

The maximum fitness one can acquire is determined by inheritance. However, the extent to which the individual develops his own potential depends entirely on his exercise habits and daily living practices.<sup>5</sup> Man can maintain fitness at a high level only if motivation is constantly present. For each individual at each developmental stage, there is a certain level of total fitness to be sought according to that person's

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<sup>3</sup>American Medical Association and the AAHPER Journal of Health, Physical Education, and Recreation, Vol. 35, No. 5, May, 1964.

<sup>4</sup>President's Council on Youth Fitness, Physical Fitness Facts, (Washington, D.C.: Government Printing Office, 1965).

<sup>5</sup>American Medical Association and the AAHPER, op. cit.

role in life, be he a child, youth, or adult. Optimum fitness during the formative years is fundamental to education for the maintenance of fitness through adulthood.<sup>6</sup>

Some of the aspects which contribute to fitness are: (1) physical activities; (2) experiences leading to skill in movement; (3) skills to enjoy a variety of activities; (4) health knowledge applicable to daily living; (5) protective services to individual health; (6) environment conducive to optimum growth and development; and (7) capable leadership.

Health education, recreation, and physical education, including athletics, can positively influence the fitness of children, youth, and adults. Participation in these programs should bring about improved fitness for living.<sup>7</sup>

## PART II

### PURPOSE

Purpose of Physical Fitness Testing. Physical fitness tests can serve four purposes. These are: (1) to make a diagnosis of the fitness condition of the individual; (2) to provide an evaluation measure of the physical education program; (3) to motivate the individual child; and (4) the aid that the fitness testing can provide to the counseling program for the child.<sup>8</sup>

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<sup>6</sup>National Conference on Fitness of Children of Elementary School Age, Children and Fitness, (Washington, D.C.: National Educational Association, 1962), pp. 53-55.

<sup>7</sup>Ibid. p. 55.

<sup>8</sup>Dauer, op. cit., pp. 169-170.

Purpose of the Problem. It is the intention of this report:

(1) to determine how the 10 to 12-year old boys in the fifth and sixth grades of selected elementary schools at North Platte rank in fitness with the National Youth Fitness Test in comparison with other similar age groups in the United States, (2) to analyze the improvement of fitness by the students of the selected elementary schools from fall to spring testing, so as to determine adjustments and changes needed in the overall elementary physical education program in North Platte, and (3) to analyze the improvement of fitness evident of the group which has no gymnasium facilities as compared with those having gymnasium facilities.

### PART III

#### DEFINITIONS OF TERMS USED

AAHPER. The American Association for Health, Physical Education, and Recreation, a department of the National Education Association of the United States.

Mean. The sum of the scores divided by their number, commonly called average or a score which represents all scores.<sup>9</sup>

School A. Refers to the elementary school with gymnasium facilities.

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<sup>9</sup>H. Harrison Clarke, Application of Measurement to Health and Physical Education, (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1959), p. 428.



School B. Refers to the elementary school without gymnasium facilities.

#### PART IV

#### ADMINISTRATION OF THE TESTS

The National Youth Physical Fitness Test was used as the basis for this study. The tests were administered in the fall during the first two weeks of September, 1966, and in the spring during the first two weeks of May, 1967. Those tested were the 10 to 12-year old boys of the fifth and sixth grades in a North Platte elementary school, which was selected at random, having gymnasium facilities. Given the same test were boys of the same age and grades in a school having no gymnasium facilities.

In the fall testing there was a total of fifty-four boys who took the test in School A. Of the fifty-four boys tested, forty-seven completed the test in the spring; four boys transferred to other schools in the system; three boys moved out of the city.

In School B a total of fifty-seven boys started the testing program in the fall, and forty-nine boys completed the fitness test in the spring. Of the eight boys failing to complete the test, three moved to other schools in the system, and five boys moved out of the city.

Norms Used. The norms used in this study were determined through the use of the President's Council on Youth Fitness, 1965. The test battery included seven test items designed to give a measure of physical fitness for both boys and girls in grades 5-12. These items were as

follows: (1) pullups; (2) situps, (3) shuttle run, (4) standing broad jump, (5) softball throw, (6) 50-yard dash, and (7) 600-yard run--walk.

Table I shows the norm scales for the excellent, good, satisfactory, and poor classifications of each test item of 10 to 12-year old boys.

TABLE I

CHART OF NORMS ESTABLISHED FOR 10, 11, AND 12 YEAR  
OLD BOYS BY THE PRESIDENT'S COUNCIL ON  
YOUTH FITNESS\*

Rating	Age		
	10	11	12
<u>PULLUP</u>			
Excellent	8	8	9
Good	5	5	5
Satisfactory	3	3	3
Poor	1	1	1
<u>SITUP</u>			
Excellent	100	100	100
Good	76	89	100
Satisfactory	50	50	59
Poor	34	35	42
<u>SHUTTLE RUN</u>			
Excellent	10.0	10.0	9.8
Good	10.5	10.4	10.2
Satisfactory	11.0	10.9	10.7
Poor	11.5	11.3	11.1
<u>STANDING BROAD JUMP</u>			
Excellent	6'1 1/2"	6'3"	6'6"
Good	5'7"	5'9"	6'1"
Satisfactory	5'2"	5'4"	5'8"
Poor	4'10"	5'0"	5'4"

TABLE I--Continued

CHART OF NORMS ESTABLISHED FOR 10, 11, AND 12 YEAR  
OLD BOYS BY THE PRESIDENT'S COUNCIL ON  
YOUTH FITNESS\*

Rating	Age		
	10	11	12
<u>SOFTBALL THROW</u>			
Excellent	198	151	165
Good	118	129	145
Satisfactory	102	115	129
Poor	91	105	115
<u>50-YARD DASH</u>			
Excellent	7.0	7.0	6.8
Good	7.5	7.5	7.2
Satisfactory	8.0	7.8	7.6
Poor	8.5	8.1	8.0
<u>600-YARD RUN--WALK</u>			
Excellent	1:58	1:59	1:52
Good	2:15	2:11	2:05
Satisfactory	2:26	2:21	2:15
Poor	2:40	2:33	2:26

\*President's Council on Youth Fitness, Youth Physical Fitness,  
(Washington, D.C.: Government Printing Office, 1965 Supplement).

## PART V

## TESTS AND RESULTS

Pullups. A doorway gym bar was used. It was raised to a height so that the pupil could hang with his legs and arms fully extended and his feet free from the floor. The grip used was the overhand grasp. From the hanging position the pupil raised his body by his arms until his chin could be placed over the bar. The pupil then lowered his body until his arms were fully extended. The exercise was repeated as many times as

possible by the pupil. The knees were not allowed to be raised, and kicking of the legs and swinging were prohibited. These movements were prevented by a person holding an extended arm across the front of the thighs. One trial was allowed, and a pullup was counted each time the pupil placed his chin over the bar.

TABLE II  
PULLUP RESULTS FOR SCHOOL A

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	4	8.5	5	11
Good	7	15	10	21
Satisfactory	8	17	6	13
Poor	<u>28</u>	<u>59.5</u>	<u>26</u>	<u>55</u>
Total	47	100.0	47	100

Results of School A Pullup Test. In Table II, an increase of 2.5 per cent was made in the number of boys appearing in the "Excellent" category between the first and second testings. In the fall, seven boys, or 15 per cent ranked in the "Good" category, whereas in the spring, ten boys, or 21 per cent ranked in the "Good", this being a 6 per cent increase. In the spring a decrease of 4 per cent was made in the boys ranking in the "Satisfactory" category. Likewise, there was a decrease of 3.5 per cent made in the number of boys ranking in the "Poor" category.

TABLE III  
PULLUP RESULTS FOR SCHOOL B

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	2	4	3	6
Good	5	10	10	20
Satisfactory	13	27	11	23
Poor	<u>29</u>	<u>59</u>	<u>25</u>	<u>51</u>
Total	49	100	49	100

Results of School B Pullup Test. As shown in Table III, there was a 2 per cent increase between the fall and spring testing of those ranking "Excellent" in the pullups. This Table also shows a substantial increase of 10 per cent of those ranking "Good" in the fall and spring testing. In the fall thirteen boys ranked "Satisfactory", whereas eleven boys ranked "Satisfactory" in the spring, this being a decrease of 4 per cent. An 8 per cent decrease was shown of those boys ranking in the "Poor" category.

Situps. The pupil lay on his back on a mat, with his legs extended and feet about two feet apart. The hands were placed behind the head with the fingers interlaced and elbows outward. The pupils worked in pairs with one person doing the situps while the other counted and held the heels of the boy being tested. The pupil sat up, turning the trunk to the left and touched the right elbow to the left knee, returned to the starting position, then sat up turning the trunk to the right and touched the left elbow to the right knee. This procedure was repeated

as many times as possible, but the pupil was not to exceed the maximum number on the norm chart.

TABLE IV  
SITUP RESULTS FOR SCHOOL A

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	25	53	20	43
Good	0	0	1	2
Satisfactory	2	4	15	32
Poor	<u>20</u>	<u>32</u>	<u>11</u>	<u>23</u>
Total	47	100	47	100

Results of School A Situp Test. Table IV shows a decrease of 10 per cent made in the spring testing session of boys appearing in the "Excellent" category. An increase of 2 per cent was made in the number of boys falling in the "Good" category. A remarkable increase of 28 per cent was made in the spring trials of the ones falling in the "Satisfactory" category. Twenty boys ranked "Poor" in the fall testings which was 43 per cent, whereas eleven boys ranked "Poor" representing 23 per cent in the spring.

TABLE V  
SITUP RESULTS FOR SCHOOL B

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	19	39	29	59
Good	1	2	2	4
Satisfactory	9	18	11	23
Poor	<u>20</u>	<u>41</u>	<u>7</u>	<u>14</u>
Total	49	100	49	100

Results of School B Situp Test. In Table V the number of boys falling within the "Excellent" category increased from nineteen boys, or 39 per cent, to twenty-nine boys, or 59 per cent. This represents an improvement of 20 per cent. In the "Good" category the percentage remains nearly the same, showing a 2 per cent increase. The number of boys ranking in the "Satisfactory" category increased from nine, or 18 per cent, to eleven, or 23 per cent. A decrease was shown in the "Poor" area from 41 per cent to 14 per cent.

Shuttle Run. The pupils were tested in the shuttle run by marking two lines on a concrete area thirty feet apart. Two cosom hockey pucks were placed on one line. The pupils started from behind the opposite line. The contestant was allowed to wear tennis shoes or go barefooted. On the signal "Ready? Go!", he ran to the pucks, picked one up, ran back to the starting line and placed the puck behind the line. The pupil then returned and picked up the second puck, and carried it back across the starting line. With the use of a stopwatch, the pupils

were timed to the nearest tenth of a second. The best time of two trials was recorded.

TABLE VI  
SHUTTLE RUN RESULTS FOR SCHOOL A

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	1	2	7	15
Good	4	8.5	10	21
Satisfactory	6	13	15	32
Poor	<u>36</u>	<u>76.5</u>	<u>15</u>	<u>32</u>
Total	47	100.0	47	100

Results of School A Shuttle Run Test. In Table VI an increase of 13 per cent was made in the number of boys falling in the "Excellent" category between the fall and spring testing. Four boys, or 8.5 per cent, ranked "Good" in the fall. This was increased to ten boys, or 21 per cent ranking "Good" in the spring. There was a 19 per cent decrease in the "Satisfactory" category from the fall to spring trials. Thirty-six boys ranked "Poor" in the spring compared to fifteen boys in the fall, showing a decrease of 43.5 per cent.



TABLE VII  
SHUTTLE RUN RESULTS FOR SCHOOL B

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	0	0
Good	0	0	12	24.5
Satisfactory	9	18	12	24.5
Poor	<u>40</u>	<u>82</u>	<u>25</u>	<u>51</u>
Total	49	100	49	100.0

Results of School B Shuttle Run Test. As shown in Table VII, there was no change in the "Excellent" category, this being 0. However, there was an increase of 24.5 per cent of those boys ranking "Good". Nine boys, or 18 per cent, ranked "Satisfactory" in the fall, whereas twelve boys, or 24.5 per cent ranked "Satisfactory" in the spring. The number of boys falling within the "Poor" category decreased from forty, or 82 per cent, to twenty-five, or 51 per cent.

Standing Broad Jump. This test was administered outside on a concrete area. A starting line was marked on the concrete with the area in front of that line measured and marked with chalk in one inch intervals. The pupil was to stand with feet spread in a comfortable position and toes just behind the starting line. In preparing to jump, the pupil swings the arms backward and bends the knees. The jump was made by simultaneously extending the knees and swinging forward the arms. Each person was given three trials and the best of three was recorded in feet and inches to the nearest inch. Each jump was measured from the

front edge of the starting line to the heel or part of the body that touched the concrete nearest the starting line. When a person stepped on or over the starting line before he jumped, the jump was disallowed.

TABLE VIII  
STANDING BROAD JUMP RESULTS FOR SCHOOL A

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	2	4	5	11
Good	5	11	7	15
Satisfactory	7	15	10	21
Poor	<u>33</u>	<u>70</u>	<u>25</u>	<u>53</u>
Total	47	100	47	100

Results of School A Standing Broad Jump Test. Table VIII shows an increase of 7 per cent made in the spring testing of boys ranking in the "Excellent" category. Five boys, or 11 per cent, ranked "Good" in the fall, whereas seven boys, or 15 per cent, ranked "Good" in the spring, showing an increase of 4 per cent. An increase of 6 per cent was made in the spring testing of those ranking "Satisfactory". A decrease of 22 per cent resulted in the spring trials of those boys ranking in the "Poor".

TABLE IX  
STANDING BROAD JUMP RESULTS FOR SCHOOL B

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	3	6
Good	9	18	12	24.5
Satisfactory	7	14	15	30.5
Poor	<u>33</u>	<u>68</u>	<u>19</u>	<u>39</u>
Total	49	100	49	100.0

Results of School B Standing Broad Jump Test. As shown in Table IX, an increase of 6 per cent was made in the spring testing of boys, ranking them in the "Excellent" category. Nine boys, or 18 per cent, ranked "Good" in the fall, whereas twelve boys, or 24.5 per cent ranked "Good", this being a 5.5 per cent increase. An increase of 16.5 per cent was evident of those ranking "Satisfactory". The number of boys falling within the "Poor" element decreased from thirty-three boys, or 68 per cent, to nineteen boys, or 39 per cent.

50-Yard Dash. This test was run on the playground area of each elementary school. The pupils started in pairs from behind the starting line. The starter raised his hand on the signal "Ready?", and started the downward motion with his arm as he said, "Go!". Two stopwatches were used, and they were started when the timer saw the starter's arm go down. The watches were stopped as the runner crossed the finish line. The time was recorded in seconds to the nearest tenth of a second. Two trials were allowed in this event.

TABLE X  
50-YARD DASH RESULTS FOR SCHOOL A

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	0	0
Good	3	6	4	8.5
Satisfactory	6	13	9	19
Poor	<u>38</u>	<u>81</u>	<u>34</u>	<u>72.5</u>
Total	47	100	47	100.0

Results of School A 50-Yard Dash Test. In Table X the number of boys and the percentages stayed the same for both testing sessions in the "Excellent" category. In the fall three boys, or 6 per cent, ranked "Good", whereas in the spring four boys, or 8.5 per cent, ranked "Good", thus showing an increase of 2.5 per cent. The "Satisfactory" category increased 6 per cent from six boys in the fall to nine boys in the spring. Thirty-eight boys ranked "Poor" in the fall compared to thirty-four boys in the spring, showing a decrease of 8.5 per cent.

TABLE XI  
50-YARD DASH RESULTS FOR SCHOOL B

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	0	0
Good	3	6	11	22
Satisfactory	10	20	13	27
Poor	<u>36</u>	<u>74</u>	<u>25</u>	<u>51</u>
Total	49	100	49	100

Results of School B 50-Yard Dash Test. Table XI shows there was no change in the "Excellent" category, it remained 0. The table also shows an increase of 16 per cent of those boys ranking "Good". Ten boys, or 20 per cent, ranked "Satisfactory" in the fall, whereas thirteen boys, or 27 per cent ranked "Satisfactory" in the spring, thus showing an increase of 7 per cent. Thirty-six boys ranked "Poor" in the fall compared to twenty-five boys ranking "Poor" in the spring, showing a decrease of 23 per cent.

Softball Throw for Distance. The softball was thrown for distance by having the pupil stand between two parallel lines six feet apart. The pupil used an overhand throw, and the point where the softball hit was marked by having pupils stand on each mark. Three trials were allowed and the best throw was measured and recorded to the nearest foot.

TABLE XII  
SOFTBALL THROW FOR DISTANCE RESULTS FOR SCHOOL A

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	5	11
Good	6	13	10	21
Satisfactory	6	13	6	13
Poor	<u>35</u>	<u>74</u>	<u>26</u>	<u>55</u>
Total	47	100	47	100

Results of School A Softball for Distance Test. Table XII shows an increase of 11 per cent in the boys ranking "Excellent" between the fall and spring testing. Six boys, or 13 per cent, ranked "Good" in the fall, and ten boys, or 21 per cent, ranked "Good" in the spring, this being an increase of 8 per cent. The results stayed the same for the rank of "Satisfactory". There was a decrease of 19 per cent of the boys ranking "Poor" in the spring.

TABLE XIII  
SOFTBALL THROW FOR DISTANCE RESULTS FOR SCHOOL B

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	4	8
Good	6	12	16	33
Satisfactory	11	23	9	18
Poor	<u>32</u>	<u>65</u>	<u>20</u>	<u>41</u>
Total	49	100	49	100

Results of School B Softball for Distance Test. As evidenced in Table XIII, no boys ranked "Excellent" in the fall, whereas four boys, or 8 per cent, ranked "Excellent" in the spring. The number in the "Good" category increased from six, or 12 per cent, to sixteen, or 33 per cent. Eleven boys, or 23 per cent ranked "Satisfactory" in the fall, and nine boys, or 18 per cent, ranked "Satisfactory" in the spring. This was a decrease of 5 per cent. There was shown a decrease of 24 per cent in the scores of those ranking "Poor".

600-Yard Run--Walk. The 600-yard run--walk was run on the sidewalk around the school grounds. The pupils started in a standing position. On the signal "Ready? Go!", the pupil started running the 600-yard distance, and the stopwatch was started. Eight pupils ran at one time. Each pupil's time was called out individually as he crossed the finish line. A partner was assigned to each runner to remember the runner's time. Walking was permitted, but the pupil was to cover the distance in the shortest possible time. Time was recorded in minutes and seconds.

TABLE XIV  
600-YARD RUN--WALK RESULTS FOR SCHOOL A

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	10	21
Good	6	13	19	41
Satisfactory	13	27.5	3	6
Poor	<u>28</u>	<u>59.5</u>	<u>15</u>	<u>32</u>
Total	47	100.0	47	100

Results of School A 600-Yard Run--Walk Test. Table XIV shows that an increase of 21 per cent was made in the number of boys falling in the "Excellent" category between the first and second trials. This category represents those boys who ran in 1 minute 59 seconds or less. Six boys, or 13 per cent, ranked in the "Good" category in the fall. This number was increased to nineteen boys, or 41 per cent of the group, in the spring. The "Satisfactory" category decreased 21.5 per cent, from thirteen boys in the fall to three boys in the spring. Twenty-eight boys ranked "Poor" in the fall compared to only fifteen in the spring, showing a decrease of 27.5 per cent.



TABLE XV  
600-YARD RUN--WALK RESULTS FOR SCHOOL B

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	0	0	7	14
Good	10	20	21	43
Satisfactory	19	39	15	31
Poor	<u>20</u>	<u>41</u>	<u>6</u>	<u>12</u>
Total	49	100	49	100

Results of School B 600-Yard Run--Walk Test. Table XV shows an increase of 14 per cent made in the number of boys falling in the "Excellent" area. Ten boys, or 20 per cent ranked "Good" in the fall. This was increased to twenty-one boys, or 43 per cent, in the spring. The "Satisfactory" scores decreased 8 per cent from nineteen boys in the fall to fifteen boys in the spring. Twenty boys ranked "Poor" in the fall compared to six boys in the spring, this being a decrease of 29 per cent.

#### PART VI

##### SCHOOL A AND SCHOOL B PHYSICAL FITNESS TEST COMPARISON

The mean scores of each test item given to School A and School B are compared in Tables XVI and XVII. The norms used to classify each mean score was taken from the 11-year old norm scale.

TABLE XVI  
SCHOOL A MEAN SCORE AND IMPROVEMENT

Activity	Fall		Spring		Improvement
	Mean	Classification	Mean	Classification	
Pullup	1.59	Poor	2.87	Poor	0.28
Situp	73.47	Satisfactory	71.09	Satisfactory	-2.38
Shuttle Run	11.92 sec.	Poor	10.83 sec.	Satisfactory	1.09 sec.
Standing Broad Jump	5'0"	Poor	5'3"	Poor	3"
50-Yard Dash	8.53 sec.	Poor	8.34 sec.	Poor	0.24 sec.
Softball Throw	97'8"	Poor	112'4"	Poor	14'8"
600-Yard Run--Walk	2:36	Poor	2:19	Satisfactory	17 sec.

TABLE XVII  
SCHOOL B MEAN SCORE AND IMPROVEMENT

Activity	Fall		Spring		Improvement
	Mean	Classification	Mean	Classification	
Pullup	2.55	Poor	3.22	Satisfactory	0.67
Situp	63.49	Satisfactory	82.22	Good	18.73
Shuttle Run	11.37 sec.	Poor	11.05 sec.	Poor	.32 sec.
Standing Broad Jump	5'0"	Poor	5'5"	Satisfactory	5"
50-Yard Dash	8.29 sec.	Poor	7.93 sec.	Poor	.36 sec.
Softball Throw	103'6"	Poor	117'4"	Satisfactory	13'10"
600-Yard Run--Walk	2:29	Poor	2:11	Good	18 sec.

Pullups. The pullup tested the endurance and strength of the arm and shoulder muscles. School A ranked "Poor" in both the fall and spring testing of the pullups with a slight improvement of .28. School B ranked "Poor" in the fall and "Satisfactory" in the spring; this being an improvement of .67.

Situps. The situp was used to test flexibility, muscular endurance, and abdominal strength. School A ranked "Satisfactory" in the fall and spring tests, however there was a decrease of 2.38 situps. School B ranked "Satisfactory" in the fall, and had an increase of 18.73 situps in the spring; thus, advancing the classification to "Good".

Shuttle Run. Speed and agility were determined by the shuttle run. An improvement of 1.09 seconds was evident between the fall and spring testing for School A, which advanced the group from the "Poor" to the "Satisfactory" classification. School B, ranking in the "Poor" category, made no change in classification in the spring. However, there was an improvement of .32 seconds made between the fall and spring testing.

Standing Broad Jump. The standing broad jump placed emphasis on the muscular strength of the legs, and is used to test balance, coordination, flexibility, and power. The group from School A showed an improvement of 3" on this test; the mean score was 5'0" in the fall, and 5'3" in the spring. The classification remained "Poor" for both phases of the testing. School B made an improvement of five inches, which advanced the group from the "Poor" to "Satisfactory" classification.

50-Yard Dash. The 50-yard dash tested leg power of the explosive nature, and measured the speed of an individual. Both scores made by School A ranked in the "Poor" category, showing an improvement of only .24 second. Likewise, School B ranked "Poor" in both testing phases, with a .36 second improvement.

Softball Throw for Distance. The softball throw for distance measured the power of the arm and shoulder muscles, body coordination and correct throwing technique. School A showed an improvement of 14'8" from the fall to spring testing. Although this was a substantial improvement, 2'8" more was needed to rank this group in the "Satisfactory"

category. School B advanced from the "Poor" to the "Satisfactory" category with an improvement of 13'10".

600-Yard Run--Walk. The 600-yard run--walk indicated the endurance of the leg muscles and the respiratory system. School A moved from 2 minutes 36 seconds in the fall to 2 minutes 19 seconds in the spring. Thus showing 17 seconds improvement, advancing this group from the "Poor" to the "Satisfactory" classification. The mean score of School B in the fall was 2 minutes 29 seconds, which ranked "Poor". In the spring School B had a mean score of 2 minutes 11 seconds. This was an improvement of 18 seconds, advancing the classification from "Poor" to "Good".

## PART VI

### SUMMARY AND CONCLUSIONS

The results of the fall testing in School A showed improvement in advancing from one classification to another in two of the seven test items. The test items were the shuttle run and 600-yard run--walk, which the subjects ranked in the "Poor" classification in the fall and the "Satisfactory" classification in the spring. In the fall School A ranked "Poor" in six test items, and "Satisfactory" in one. In the spring the group ranked "Poor" in four test items, and "Satisfactory" in three. Some improvement was shown in six of the seven test items, but the improvement was not enough to advance the group to another classification. The situp test was the only test item in the testing program

that decreased from the fall to the spring testing. No change from the "Satisfactory" classification occurred.

It was evident that the 10-12 year-old boys from School A ranked low when compared to the national norms which were established by the President's Council for Youth Fitness. It is indicated from the results of the physical fitness test that emphasis needs to be placed on improving the physical fitness of this group. Emphasis needs to be placed on activities which will develop the arm and shoulder muscles, and the leg muscles, since the group ranked "Poor" in the fall and spring in the pullups, standing broad jump, 50-yard dash, and softball throw for distance. Improvement appears to be needed also in the events the group ranked "Satisfactory", which are the situps, shuttle run, and 600-yard run--walk.

It is apparent that the addition of climbing ropes, chinning bars and peg boards is desirable for the development of the arm and shoulder muscles. More emphasis on activities such as soccer would help develop the leg muscles.

School B showed an improvement on all seven test items, advancing to another classification in five of the test items. In the fall the group ranked "Poor" in six of the seven test items, and "Satisfactory" in one. In the spring School B ranked "Poor" in two tests, "Satisfactory" in three tests, and "Good" in two tests. The improvement of 18 seconds in the 600-yard run--walk, advancing the group in classification from "Poor" to "Good", was the most improvement made in any test item throughout the testing program.

It was concluded that the 10-12 year old boys in School B need improvement according to the test comparisons of other boys of the same age on the national norm scale developed by the President's Council for

Youth Fitness. The group ranked "Poor" in the shuttle run and the 50-yard dash in both the fall and spring testing. Thus, the test indicated that more emphasis should be placed on leg power, speed, and agility. It appears that improvement could also be made in the pullups, standing broad jump and softball throw. This involves the developing of the arm and shoulder muscles, body coordination and leg power.

Since School B has no gymnasium facilities, it would be desirable if; (1) more climbing equipment could be placed on the playground, (2) gymnasium facilities made available for gymnastic equipment, (3) gymnasium facilities made available for activities where speed and agility could be developed during the inclement winter months.

The investigator was very surprised to note that the outcome of the physical fitness testing showed greater overall improvement in School B, which was the school with no gymnasium facilities, but with limited indoor facilities. However, the reason for this could be assumed that School B devotes a greater percentage of its time on exercise activities during bad weather, rather than game type of activities because of its limited indoor facilities. It is also assumed that School B spends more time outdoors on cooler days which School A would be using the gymnasium facilities. From the test results it appeared that this group had more activities in their program to develop the arms and legs.

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A COMPARATIVE STUDY OF THE PHYSICAL FITNESS OF  
FIFTH AND SIXTH GRADE BOYS IN SELECTED  
ELEMENTARY SCHOOLS OF NORTH PLATTE  
PUBLIC SCHOOL SYSTEM

by

RAY SAMUEL T. SNELL

B. S. Chadron State College, 1961  
Chadron, Nebraska

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AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

Department of Physical Education

KANSAS STATE UNIVERSITY  
Manhattan, Kansas

1967

Never before in history has an entire nation mastered its environment sufficiently to free itself for the fullness of life in all of its aspects. It is no longer necessary for man to devote his entire life to the basic task of keeping himself alive. Since man has utilized the forces of nature, he is free to engage in creative activities.

Health education, recreation, and physical education, including athletics, can positively influence the fitness of children, youth, and adults. Participation in these programs should bring about improved fitness and an understanding and appreciation of the values of fitness for living.

The investigator's objective of this study was to: (1) determine how the 10 to 12-year old boys in the fifth and sixth grades of selected elementary schools at North Platte rank in fitness with the National Youth Fitness Test in comparison with other similar age groups in the United States, (2) to analyze the improvement of fitness by the students of the selected elementary schools from fall to spring testing, so as to determine adjustments and changes needed in the overall elementary physical education program in North Platte, and (3) to analyze the improvement of fitness evident of the group which has no gymnasium facilities as compared with those having gymnasium facilities.

The National Youth Physical Fitness Test was used as the basis for this study. The tests were administered in the fall during the first two weeks of September, 1966, and in the spring during the first two weeks of May, 1967. Those tested were the 10 to 12-year old boys of the fifth and sixth grades in a North Platte elementary school, which was selected at random, having gymnasium facilities. Given the same test

were boys of the same age and grades in a school having no gymnasium facilities.

The norms used in this study were determined through the use of the President's Council on Youth Fitness, 1965. The test battery included seven test items designed to give a measure of physical fitness for both boys and girls in grades 5-12. These items were as follows: (1) pullups, (2) situps, (3) shuttle run, (4) standing broad jump, (5) softball throw, (6) 50-yard dash, and (7) 600-yard run--walk.

The results of the spring testing in School A showed an improvement in advancing from one classification to another in two of the seven test items. The test items were the shuttle run and 600-yard run--walk, which the subjects ranked in the "Poor" classification in the fall and the "Satisfactory" classification in the spring. In the fall School A ranked "Poor" in six test items, and "Satisfactory" in one item. In the spring the group ranked "Poor" in four test items, and "Satisfactory" in three. Some improvement was shown in six of the seven test items, but the improvement was not enough to advance the group to another classification. The situp test was the only test item in the testing program that decreased from the fall to the spring testing. No change from the "Satisfactory" classification occurred.

School B showed an improvement on all seven test items, but only advanced to another classification in four of the seven test items, and "Satisfactory" in two. In the spring School B only ranked "Poor" in two tests along with three test items ranking "Satisfactory", and two test items ranking in the "Good" classification. The improvement of 18 seconds in the 600-yard run--walk, advancing the group in

classification from "Poor" to "Good", was the most improvement made in any test item throughout the testing program.

The results of this testing program has shown a definite need for the improvement of physical fitness.