A STUDY OF THE PHYSICAL FITNESS OF THE FRESHMAN BOYS OF BELOIT HIGH SCHOOL, BELOIT, KANSAS. 1963-64

by

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INTRODUCTION

Since the "Seven Cardinal Principles of Education" were announced in 1918, schools have held as an objective of education the development of good health and physical efficiency. Through the cooperative efforts of school board members, school administrators, teachers and organized citizenry, our nation has developed an increasingly effective school system and has improved specific areas of education. Continuation of such cooperation in strengthening physical fitness programs is heartily encouraged.

Every generation has complained of its lack of fitness, particularly in times of war. During World War II and the Korean War our country became very concerned about the large percentage of draftees who were rejected from military service. Today's awareness is somewhat different than that of the past, because our country is not in war at the present time. But at the same time it was men who possessed vigor and strength as well as courage and vision who first settled these shores, and over more than three centuries, subdued a continent and wrested a civilization from the wilderness. It was physical hardihood that helped Americans in two great wars to defeat strong and tenacious foes and make this country history's mightiest defender of freedom.

At the same time, young Americans are attaining new standards of excellence in athletic contests. People are living longer on the average, with many more benefits than any era in history. The trouble is the record holders' percentage is too small and people don't know what to do with their spare time. Technology and automation have eliminated many

of those physical exertions which were once a normal part of the working day. New forms of transportation have made it unnecessary to walk to school or to the office or the corner store. New forms of entertainment have consumed much of the time which was once used for sports and games.

Lack of physical fitness may be due to some organic deficiency or infection or most likely due to insufficient exercise. We know one of the causes of the physical fitness problem is that technological developments have greatly reduced muscular effort in our daily lives and this trend continues. Therefore, we must make provision for adequate exercise and therefore our key to the solution.

Many tests of different types have been administered to test fitness. One of the better known tests, the Krause-Weber,[1] indicated a great difference in the fitness of the European and the American youth. The Americans were very inferior on this particular test.[2]

It was in response to this problem that President Eisenhower urged immediate attention to our deteriorating level of physical fitness; and his Administration established a nationwide program of cooperation with state, city and town officials to raise our fitness level. In 1956 the President's Council on Youth Fitness was organized and placed under Special Presidential Consultant Charles B. (Bud) Wilkinson, former football coach of the University of Oklahoma. Under Mr. Wilkinson's diligent leadership the council developed; in cooperation with 19 leading school

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[1]Youth Fitness Test Manual, 1958, p. 1.

[2]President John F. Kennedy, "The Vigor We Need," Sports Illustrated, 17:13, July 16, 1962.

and medical organizations; the basic concepts for a program of physical fitness now in use by more than half the country's public schools. The results were a dramatic proof of the value of carefully designed school physical fitness programs. After only six weeks 25 per cent of the students who had failed the basic fitness test passed. A similar gain was measured each succeeding six weeks until, by the end of the school year, an average of 80 per cent of those who had failed were able to pass.[3] In the Kraus-Weber tests they found that of the six tests for muscular strength and coordination to 7134 children in Austria, Italy, Switzerland and the United States. An incredible 57.9 per cent of the American children failed one or more of these simple tests. Only 8.7 per cent of the European boys and girls flunked. Since 1948, 40 per cent of the young men called up for the draft were turned down for service, most of them because of physical deficiencies. At Yale, entering freshmen are required to take a fitness examination. In 1951 nearly half of them failed; but a decade later, when the Class of 1964 arrived at New Haven, 62 per cent failed.

Secondly, the council designed a nationwide campaign to alert Americans to physical fitness needs and provide them with the information needed to conduct fitness programs. More than 340,000 copies of the school physical fitness program were distributed; and during the past school year (1962) the number of schools offering such a program rose by 13 per cent.

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[3] R. M. Marshall, "Toughening our Soft Generation," The Saturday Evening Post, 235:13, June 23, 1962.

Thirdly, the council is now moving forward with a wide range of physical fitness activities in the fields of recreation and health education. Special programs were developed for college students and for adults. A series of recommendations were made to leaders of the armed forces, and those recommendations are now being put into effect.

This progress is heartening, and has helped to chart the course for our future activity. But it must be viewed as only a small beginning in a nation where 60 per cent of the school children do not participate in regular physical fitness programs, where millions of adults neglect their needs for regular exercise, and where general levels of physical vitality are being surpassed by other developed nations.

School programs should be directed toward helping all pupils attain a high degree of fitness, with special attention being given to those children who are physically underdeveloped.[4]

1. Physically gifted youngsters usually have adequate programs.
2. The needs of the physically-underdeveloped frequently have been overlooked; these pupils require particular assistance.
3. The school physical education program offers the best means of reaching these children.
4. Fitness programs should give emphasis to a program for girls as well as boys.

The program proposed herein, while basically aimed at physical fitness, will, in its broad aspects, never neglect moral, mental, social, and spiritual fitness.

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[4]Youth Physical Fitness, op. cit., p. 4.

PURPOSE OF PHYSICAL FITNESS TESTING

Validated tests have long been a part of a good physical education program.[1]

1. Only through tests can standards be developed.
2. Tests provide the best means of measuring achievement and diagnosing weaknesses.
3. Physical achievement tests provide self-evaluation and a strong motivation for development within the individual pupil.

Test and measurements are useful only if they help the teacher to do a better piece of work.[2] Too many physical educators give fitness tests only to look good in the eyes of their administrative superiors. Physical fitness tests, like any other tests, should be given with some definite purpose in mind.

Some physical education teachers give tests of this nature to classify the students into homogeneous groups. This may be done to aid the teaching of each group. Also, the social relationship to the students involved will be much more conducive to learning if they participate with others their own sex, size, maturity, strength, speed, and skill.[3]

Many physical educators are at a loss to explain or to describe corrective measures for the deficiencies of some students. After the physical educator evaluates the test given he should be in a better position to prescribe a program of activity which will most effectively bring about rapid improvement for those with handicaps, limitations, or weaknesses. This purpose might be referred to as guidance.

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[1] Youth Physical Fitness, July 1961, p. 8.

[2] Edward F. Voltmer and Arthur A. Esslinger, The Organization and Administration of Physical Education, p. 509.

[3] Ibid., p. 510.

Grading provides another reason for testing in physical education. This tends to arouse the motivation of those being tested. The students are always interested in what others their own age can do. Competition is great to excel peers.

Perhaps one of the most important uses of a test is to measure progress toward an objective. These objectives include: improvement of strength, muscular endurance, posture, and body mechanics, skill, knowledge, and health. Evaluation of such tests offer aid to supervisors and physical educators in developing and or changing physical education programs.

Because of a nationwide testing program, last July the presidential council reported a surge of improvement in physical fitness in schools and colleges.[4] Despite the gains, the report said, the United States "still has a long way to go to match many foreign countries in physical fitness programs." Still it said, "today's school children are spending more time in physical fitness programs and are measurably stronger and in better condition than the school children of a few years ago...a significant trend also is noted at the college level."

PURPOSE OF THE PROBLEM

The purpose of this problem was threefold. The first purpose was to provide data for the author about the physical fitness of the students at Beloit High School in Beloit, Kansas, during the school year, 1963-64. The results were compared to the norms established by the President's Council on Youth Fitness. After evaluation of this test,

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[4] Physical Fitness Effort Has Improved U. S. Youth, Kansas City Times, 91:21, July 31, 1963.

the author will have some concrete evidence indicating that some types of activities may need some emphasis in the physical education program at Beloit High School. The results will help the author in planning the physical education activities in the future.

The second purpose was to provide the state department with data about the fitness of the boys in Beloit High School. The third purpose was to provide the Kansas State University Physical Education Department with information about one of the high schools in Kansas and the physical fitness problem.

DEFINITION OF TERMS

Fitness--In a broad sense fitness may be used to refer to over-all well being, which has moral, intellectual, social and emotional components as well as physical ones.[1]

Physical Fitness--A mixture of the best possible bodily health plus the physical condition to perform everyday tasks effectively and to meet emergencies as they arise.[2]

Agility--Speed in changing body positions or in changing directions.[3]

Endurance--The ability to sustain prolonged activity. The ability to maintain a muscle in a state of contraction against a load or to repeat single contractions in rapid succession are measures of muscular endurance.[4]

Mean or Average--That score which represents all scores.

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[1]Fred V. Hein, "What is Physical Fitness?" National Education Association Journal, 51(2):34, February, 1962.

[2]Loc. cit.

[3]H. Harrison Clarke, Application on Measurement to Health and Physical Education, p. 222.

[4]Lawrence Morehouse and Augustus Miller, Physiology of Exercise, p. 241.

Speed--Rapidity with which successive movements of the same kind can be performed.[1]

Strength--The ability to exert force against resistance.[2]

METHODS OF ADMINISTERING THE TEST

In giving this physical fitness test, which was recommended by the President's Council on Youth Fitness, the following procedure was followed:

The ninth grade boys enrolled in physical education at Beloit High School in Beloit, Kansas made up the entire group of those tested for this problem. The first test was administered the first week of school in September, 1963. This took five class periods. The same test was repeated the last week of the school year, in May, 1964. The same procedure was used as in the fall testing.

Forty-three students in the ninth grade completed the test in the fall and forty-one in the spring. Two boys moved away during the winter months. Thirty of the boys were fourteen years old, twelve of them were fifteen years old, and one was sixteen years old. In comparing their test results the author used the norms for fourteen, fifteen and sixteen year olds established by the President's Council on Youth Fitness. Because some of the boys had birthday's during the school year, the mean scores might indicate a lower degree of fitness of the boys tested than actually existed.

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[1]Clarke, loc. cit.

[2]Hope Smith and Marguerite Clifton, Physical Education Exploring Your Future, p. 14.

This test was given to all ninth graders enrolled in the required physical education program. Most of these boys participated in the schools football, basketball or track programs. These were not classified as intramural programs. A few students had no extra-class activities of the physical type within the school environment.

Prior to administering the test the students were informed about the test and the reason for giving it. They were encouraged to "go all out." Empirically it appeared that most of those tested followed these instructions. Each event to be tested was explained and demonstrated prior to the testing.

NORMS USED FOR THIS PROBLEM

The American Association of Health, Physical Education and Recreation held a fitness meeting in 1956, with a view of surveying the fitness of United States youth. In 1957, a committee of the Research Council acting for the National Association agreed upon a set of tests to be administered to a nationwide sampling of boys and girls between the ages of 10 and 17.[1] Test directions were prepared and administered during the school year 1957-58 at various schools throughout the United States. School children tested included those from: urban and rural, public and private, boys' and girls', and co-educational schools. The test was given to 8500 students throughout the nation. Norms were then established according to age and sex.

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[1]William Campbell and Richard Pohndorf, Health and Fitness in the Modern World, p. 9, 1961.

TABLE I

THE PRESIDENT'S COUNCIL ON YOUTH FITNESS NORMS ESTABLISHED FOR 14 YEAR-OLD BOYS.[1]

Pullups	Situps	Shuttle Run	Standing Broad Jump	50 Yard Dash	Softball Throw	600 Yard Run-Walk
Excellent						
10	99	9.4	7'2"	6.5	190	1:50
Good						
9	98		7'1"	6.6	189	1:51
	90	9.5	7'0"	6.7	185	1:54
8	85	9.6	6'11"		180	1:56
	80	9.7	6'10"	6.8	175	1:58
7	75	9.8	6'9"		170	2:00
	70	9.9	6'8"	6.9	165	2:02
6	65	10.0	6'7"	7.0	163	2:04
						2:05
Satisfactory						
5	59	10.1	6'6"	7.1	161	2:06
		10.2	6'5"		160	2:08
	55	10.3	6'4"	7.2	155	2:09
4		10.4	6'3"		150	2:10
	50	10.5	6'2"	7.3	147	2:12
			6'1"			2:14
	44					2:16
						2:18
Poor						
3	43	10.6	6'0"	7.4	146	2:19
		10.7	5'11"		145	2:22
2	40	10.8	5'10"	7.5	140	2:24
		10.9	5'9"		135	2:26
1	35	11.0	5'8"	7.6	131	2:28
			5'7"			2:30
	33			7.7		

[1]Youth Physical Fitness, op. cit., pp. 44-54.

TABLE II

THE PRESIDENT'S COUNCIL ON YOUTH FITNESS NORMS ESTABLISHED FOR 15 YEAR-OLD BOYS.[1]

Pullups	Situps	Shuttle Run	Standing Broad Jump	50 Yard Dash	Softball Throw	600 Yard Run-Walk
Excellent						
10	99	9.3	7'8"	6.2	207'	1:43
Good						
9	98	9.4	7'7"	6.3	205	1:44
	90	9.5	7'6"	6.4	200	1:49
8	85	9.6	7'5"	6.5	195	1:50
	80	9.7	7'4"	6.6	190	1:52
7	75	9.8	7'3"	6.7	185	1:54
	70	9.9	7'2"		182	1:56
	65	10.0	7'1"			1:58
	60		7'0"			1:59
Satisfactory						
6	59	10.1	6'11"	6.8	181	2:00
	55	10.2	6'10"	6.9	180	2:02
	50	10.3	6'9"	7.0	175	2:04
5	49	10.4	6'8"		170	2:06
	47		6'7"		165	2:08
	45		6'6"		164	2:09
			6'5"			
Poor						
4	44	10.5	6'4"	7.1	163	2:10
	43	10.6	6'3"	7.2	160	2:12
3	42	10.7	6'2"	7.3	155	2:14
	40	10.8	6'1"		154	2:16
2	38	10.9	6'0"		152	2:18
	37		5'11"		150	2:20

[1]Youth Physical Fitness, op. cit., pp. 44-54.

TEST AND RESULTS

Following are the specifications and instructions given prior to each test item:[1] followed by the test results.

Pullups

One horizontal bar was used. Starting position was grasping the bar with hands, palms facing forward, hanging with arms and legs fully extended. Feet could not be touching the floor. From this hanging position the pupil pulled himself upward until his chin was over the bar. He then lowered himself until elbows were fully extended. This was repeated as many times as possible.

Swinging was not permitted. If a student started to swing the tester placed an extended arm across the thighs of the student to stop the swing. Jerking or kipping movements were not permitted.

TABLE III

RESULTS OF THE PULLUP TEST

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	3	7	10	24.5
Good	13	31.5	13	31.5
Satisfactory	11	27.0	7	17
Poor	14	34.5	11	27
TOTAL	41	100	41	100

[1] *Loc. cit.*

Table III indicates that the boys of Beloit High School in the freshman class ranked below average in comparison to the norms established by the President's Council on Youth Fitness on the pullup test. Only three boys or 7 per cent of those taking the fall test ranked excellent according to the norms shown in Tables I and II. Fourteen, or 34.5 per cent of the boys were rated poor on the pullup testing in the fall. A range of 16 pullups with a mean score of 5.25 pullups per boy was performed in the fall testing.

An increase was shown in the mean score from 5.25 pullups in the fall to 6.00 pullups per boy in the spring. The excellent category went from three to ten boys, the good group stayed the same, with satisfactory and poor decreasing from 27 to 17 per cent and 34.5 to 27 per cent, respectively. This means 11 out of 41 boys failed to do a maximum of 4 pullups.

Situps

The class was divided into two equal groups. One half of the students did situps while the other half held the ankles of those being tested. When one group finished the two groups changed positions. The individuals being tested were placed in a supine position on the floor with the feet about shoulder width apart. The hands, with fingers interlocked, were grasped behind the neck.

The situps were done by raising the head and chest forward, and at the same time rotating the trunk to the left, touching the right elbow to the left knee. They then returned to the starting position. The boys repeated the situps as before except they rotated the trunk to

the right, touching the left elbow to the right knee. They returned to the starting position. The boys kept alternating as previously described and did as many situps as possible, but stopped when the score which was indicated as excellent by the President's Council on Youth Fitness was reached.

The student who held the feet did the counting. One complete situp was counted each time a student returned to his starting position.

TABLE IV

RESULTS OF THE SITUP TESTING

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	7	17	15	37
Good	5	12	8	20
Satisfactory	8	19	6	15
Poor	21	52	12	28
TOTAL	41	100	41	100

The mean score of the situps done by the freshman boys of Beloit High School was 52.14 situps per boy in September, 1963. Of those tested, seven boys or 17 per cent of the boys were classified as excellent in the fall according to Table I and II. Table IV shows that twenty-one boys or 52 per cent rated poor on the situps and the excellent, the good and satisfactory ranges were about equal.

According to Table I, the mean score increased considerably during the school year. By May, 1964, the mean score of the situps done by the Beloit High School boys had risen from 52.14 situps to 66.8 situps per boy.

This was an increase of 14.66 situps per boy. The spring testing of the boys at Beloit High School showed fifteen boys or 37 per cent classified as excellent in this event. Of the forty-one boys tested, eight or 20 per cent improved enough to be classified in the excellent grouping.

The improvement of the boys at Beloit High in the situps, from 52.14 to 66.8 per boy, raised the mean score from the satisfactory to the good category as indicated in the norms established by the President's Council on Youth Fitness presented in Table I.

Shuttle Run

The individuals were tested one at a time. One stop watch was used to record the result. Two blocks of wood about 1-1/2 by 1-1/2 by 4 inches long were used for the testing. These blocks were placed behind a parallel line 30 feet from the starting line.

Students were instructed to start in any position desired. On the signal, "Ready! Go!" the student ran to the blocks, picked up one block, returned to the starting line where the block was placed on the floor. He then repeated this procedure by retrieving the second block and carrying it back across the starting line. The second block did not have to be placed on the ground.

Two trials were permitted. Several of the student's trials were disqualified when the blocks were thrown or dropped before returning to the starting line.

The mean score of 10.43 seconds shown in Table V for the fall testing of the shuttle run was classified at the lower end of satisfactory

TABLE V

RESULTS OF THE SHUTTLE RUN TEST

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	3	7	7	17
Good	13	31.5	14	34.5
Satisfactory	9	22	7	17
Poor	16	39.5	13	31.5
TOTAL	41	100	41	100

according to the norms shown in Table I and II. Only three boys, or 7 per cent, of the forty-one boys tested ranked excellent on this particular event in the fall. Sixteen Beloit High School boys were classified in the poor group in the fall testing of the shuttle run. This was thirty-nine and one half per cent of the boys taking the test.

The spring testing indicated some change in the excellent group and the poor group. The mean score stayed about the same, being 10.43 in the fall and 10.45 in the spring. This means the classification is still satisfactory according to the national norms shown in Table I.

Table V shows a remainder of thirteen boys or 31.5 per cent classified in the poor group in the spring as compared to sixteen boys or 39.5 per cent in the fall. The number of boys classified as excellent in the spring increased from 3 to 7 per cent on the first testing to 7 or 17 per cent on the last.

A range of 3 seconds was found for the forty-one boys tested in the shuttle run in the fall. The slowest time was 12 seconds and the fastest time was 9 seconds. The range of the spring testing was 3.3 seconds

for the shuttle run. This range was from 12.3 to 9 seconds.

From this particular test you might conclude that we are only helping the best students and the poor students and missing the middle students in the physical education program conducted at Beloit High School. Some of this can be explained by the fact that many of the boys had just returned from a siege of measles.

Standing Broad Jump

This exercise was tested in the gymnasium where a tape measure was fastened to the floor with adhesive tape. The pupils jumped beside the tape, thus making it very easy to read the mark. Students were not permitted to practice on their own, they lined up alphabetically and jumped. Each person was permitted two trials, the best jump was the one recorded. The jump was marked at the heel, not at the toe, of the foot farthest back.

Preparatory to performance of this test item, students were instructed to stand with the toes just behind the take off line with feet comfortably apart. Other points stressed were to keep their knees flexed and to swing the arms backwards and forward in a rhythmical motion. When the jump was made the arms were to swing forcefully forward and upward simultaneously with the taking off from the balls of the feet.

Measuring was done from the starting line to the place where either heel hit the floor nearest the starting line. Measurements were recorded to the nearest inch.

TABLE VI

RESULTS OF THE STANDING BROAD JUMP TEST

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	2	5	4	10
Good	12	30	11	27
Satisfactory	8	19	10	24
Poor	19	46	16	39
TOTAL	41	100	41	100

The boys of Beloit High School ranked slightly below average in comparison to the national norms. Only two boys ranked in the excellent group in the fall according to Table VI. This was 5 per cent of those tested. Thirty per cent of the students were classified good on the broad jump test. Only eight boys, or 19 per cent were classified as satisfactory in this particular event. The fall testing indicated that 46 per cent, or nineteen boys, were below satisfactory. The results of the fall testing of the standing broad jump showed a mean score of 6 feet 2 inches. This is considered low satisfactory according to the norms of the President's Council on Youth Fitness shown in Table I and II.

The mean score of the spring testing of the standing broad jump was two inches farther than the fall testing. The results of the spring testing of this event resulted in a mean score of 6 feet 4 inches per boy. The number of students classified as excellent, and satisfactory increased from the first testing to the last testing with good and poor decreasing.

Table VI shows that four students, or 10 per cent were classified excellent, eleven students, or 27 per cent classified good and ten students

or 24 per cent classified satisfactory in the spring testing of this particular event.

A decrease in the number of students who were classified poor on the standing broad jump was indicated in the spring testing. Sixteen students, or 39 per cent of those boys tested were in the range of the poor grouping. This was three students or 7 per cent less than the number of students indicated in the poor category on the fall testing.

Fifty Yard Dash

Students started behind the starting line using any starting position desired. The starter, the author, used a .22 caliber gun to start each heat. The event was run on a cinder track.

Two boys ran in each heat. Two stop watches were used to determine the time elapsed between the starter's signal and the instant the student crossed the finish line. Time was recorded to the nearest tenth second.

TABLE VII

RESULTS OF THE FIFTY YARD DASH TEST

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	1	2.5	5	13
Good	12	30	16	39
Satisfactory	6	14.5	10	24
Poor	22	53	10	24
TOTAL	41	100	41	100

The freshman boys of Beloit High School had a mean score of 7.44 seconds for the 50 yard dash in the fall testing. According to the national norms this was poor. Only one boy ran fast enough to be classified excellent in this event. Fifty-three per cent, or twenty-two students, failed to run the 50 yards fast enough to be classified satisfactory.

There was much improvement in this event shown by the spring testing. An increase of .64 seconds per boy, which increased the mean score to 6.8 seconds per boy was indicated in the spring testing. There was an increase of one boy to five boys in the excellent classification. The number of good went from 12 in the fall to 16 in the spring, which was a 9 per cent increase. The satisfactory group increased from six to ten boys or 9.5 per cent. Those boys classified as poor in the 50 yard dash in the spring testing included ten boys or 24 per cent of those boys tested.

Softball Throw

A regulation softball was used. The throwing was done on a football field marked off in intervals of 5 yards. Each student threw two times. Students not being tested halped to mark the farthest landing point, retrieve, and measure the distance of the thrown ball.

Those being tested lined up alphabetically to take their turn. The thrower could not run up to the line before throwing. He had to throw from between chalk lines six feet apart. Only overhand throws were used.

Measuring was done to the nearest foot.

TABLE VIII

RESULTS OF THE SOFTBALL THROW TEST

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	3	7	9	22.5
Good	8	19	9	22.5
Satisfactory	4	9.5	11	27
Poor	26	54.5	12	28
TOTAL	41	100	41	100

A range of 125 feet, from 89 feet to 214 feet, resulted in the fall testing of the softball throw. Only three boys threw the softball 190 feet which classified them in the excellent range for the fall test. Table VIII indicates eight boys rated good and four boys rated satisfactory in the fall testing. According to the national norms shown in Table I and II, the remaining twenty-six students, or 54.5 per cent, were classified as poor. The mean score of each student in the fall testing was 146.46 feet per throw.

Table VIII indicates eighteen students,or 45 per cent,ranked in both the excellent and good categories. Only twelve students ranked in the poor category or 28 per cent as compared to 26 or 54.4 in the poor group in the fall testing, according to the President's Council on Youth Fitness norms shown in Table I.

600 Yard Run-Walk

A 600 yard distance was marked off around a quarter-mile track for the running of this event.

The students paired off. As one student ran the 600 yards, his partner waited at the finish line to establish and record the time of his running partner. Five or six boys ran in each group. Participants started on the signal, "Ready! Go!" The object was to cover the 600 yard distance in the shortest possible time. As the runners crossed the finish line the instructor called out the elapsed time in minutes and seconds from a stop watch. Each runner's partner listened for and remembered his partner's time until all had finished the heat; then the results were recorded.

TABLE IX

RESULTS OF THE 600 YARD RUN-WALK TEST

Classification	Fall		Spring	
	Number	Per cent	Number	Per cent
Excellent	5	12	18	44
Good	21	52	15	37
Satisfactory	10	24	5	12
Poor	5	12	3	7
TOTAL	41	100	41	100

The freshmen boys of Beloit High School ranked satisfactorily with a mean score of 2 minutes 8 seconds in the fall testing of the 600 yard run-walk. Five boys were classified excellent in this particular event at the time of the first testing. The number classified as good, satisfactory and poor in the fall was 21, 10 and 5 respectively, as shown in Table IX.

A decrease in time of 16 seconds in the running of this event was indicated for the spring testing over the fall testing. This resulted

in a mean score of 1 minute 52 seconds for the 600 yard race. President Johnson's council's scale on youth fitness indicates this as good in comparison to others the same age throughout the United States.

In the spring for the 600 yard run-walk eithteen students, or 44 per cent, were classified in the excellent range. Those boys classified good decreased from twenty-one boys, or 52 per cent, to fifteen boys, or 37 per cent, from the fall to spring testings. Students rated satisfactory decreased from ten boys, or 24 per cent, in the fall to five, or 13 per cent, in the spring. A decrease from five to three students ranked as poor.

SUMMARY

The boys at Beloit High School showed an improvement in all but one event on the President's Youth Council Physical Fitness test during the course of the school year, 1963-64. The students improved much more in some events than others.

TABLE X

AVERAGE SCORE AND IMPROVEMENT OF EACH EVENT

Activity	Fall	Spring	Improvement
Pullups	5.25	6.00	.75
Situps	52.14	66.8	14.66
Shuttle run	10.43 sec.	10.45 sec.	-.02 sec.
Standing broad jump	6'2"	6'4"	2"
50 yard dash	7.44 sec.	6.8 sec.	.64 sec.
Softball throw	146.46 '	162 '	15.54 '
600 yard run-walk	2 min. 8 sec.	1 min. 52 sec.	16 sec.

The students at Beloit Hifh School improved from 5.25 pullups to 6 pullups per boy during the school year. This was enough improvement to classify the average student good according to national norms established for the pullups.

An increase of 14.66 situps per boy is indicated by Table X; 52.14 in the fall to 66.8 situps in the spring. According to the national norms the over-all rating of the Beloit High School boys increased from the satisfactory to the good group in the situps from the first testing to the last.

The average time fell off .02 of a second in the shuttle run from the fall testing to the spring testing. During the school year the students went from 10.43 to 10.45 seconds. This was the only event in which the boys didn't improve. The average time established by the boys was considered satisfactory by the norms shown in Table I and it remained the same during the spring testing. Several boys had recently recovered from the measles when the test was given. This could explain, in part, the lack of improvement in this particular event.

Six feet two inches was the mean distance jumped by the students in the standing broad jump test in the fall. An improvement of 2 inches was indicated in Table X in the spring testing; therefore, 6 feet 4 inches was the average standing broad jump in the spring.

The fall testing of the 50 yard dash showed that the freshmen boys of Beloit High established a mean score of 7.44 seconds. Table X indicates a decrease of .64 seconds per boy from the first testing to the last. The mean established in the spring testing was 6.8 seconds per boy for the 50 yard dash. This was one of the most improved events in the test.

Norms established by the President's Council on Youth Fitness classified the fall as poor and the spring mean scores as good.

The students at Beloit High School increased the distance of the softball throw from 146.46 feet to 162 feet. This was an improvement of 15.54 feet per boy. Even with this increase in distance the mean score of the boys only jumped from a high poor to a high satisfactory on the norms.

A large amount of improvement was shown by the boys in the 600 run-walk test. The boys decreased their running time in this event from 2 minutes 8 seconds to 1 minute 52 seconds which is a 16 second decrease for each boy.

CONCLUSIONS

In comparison to the norms established by the President's Council on Youth Fitness, the boys of Beloit High School in Beloit, Kansas, rated a classification of good in the spring on the pullup tests. Their mean score increased from 5.25 to 6 from the fall testing to the spring testing. Only 27 per cent were classified as poor on the spring test compared to 34.5 per cent in the fall test. The pullup test, which tests the strength and endurance of the arm and shoulder muscles, indicates the boys of Beloit High Freshman Physical Education class may be a little above average in comparison to other boys the same age throughout the nation.

The muscular endurance, flexibility and the abdominal strength of the boys tested appeared to go from middle satisfactory to good in the situp test. A mean score of 52.14 situps per boy was indicated in the September testing. The boys of Beloit High improved throughout the school

year until a mean score of 66.8 situps per boy was accomplished in the May testing. This mean score is a little over the good area in the norms set up by the President's Council on Youth Fitness.

The mean score of the fall testing of the shuttle run was 10.43 seconds for the Beloit High students. The students decreased .02 seconds during the course of the school year. Of the seven events tested, the students did the poorest on the shuttle run.

In comparison to the norms established by the President's Council the mean score was satisfactory in the fall and stayed the same all year. According to the national norms a rating from 10.5 to 10.1 seconds places one in the satisfactory category. Speed and agility of those boys tested was a little below average, nationally.

Students from Beloit High School did not rank very high in either the fall or the spring testing on the standing broad jump. The standing broad jump was used to test the power, coordination, strength, flexibility, and balance of the boys. A mean score of 6 feet 2 inches was indicated in the fall and 6 feet 4 inches in the spring testing. Satisfactory for the national norms is from 6 feet 1 inch to 6 feet 6 inches.

The national norms indicate that any time slower than 7.0 seconds for the 50 yard dash as being satisfactory. The average time for the freshman boys at Beloit High was 6.8 in the spring. This test indicates that the speed of those tested in the 50 yard dash is above average, compared to other 14 year-old boys throughout the nation.

Of the forty-two boys tested 28 per cent failed to throw the softball 147 feet, which was the distance required to be ranked as satisfactory.

The spring testing indicated a mean score of 162 feet. The power technique of throwing and coordination of the arm muscles of the boys at Beloit High School should be developed more to meet the national norms.

A mean score of 2 minutes 8 seconds was indicated on the fall testing in the 600 yard run. The boys ran the same distance in an average time of 1 minute 52 seconds in the second testing. One minute 51 seconds to 2 minutes 5 seconds is considered good according to the national norms.

The fall testing indicated the students ranked poor in two events. They were the 50 yard dash and softball throw. All other events were classified as satisfactory in the fall. The spring testing indicated that the boys didn't rank poor in any of the events. The mean score of the 50 yard dash improved from poor to good and the softball throw improved from poor to satisfactory. Standing broad jump stayed at satisfactory, pullups went from satisfactory to good, situps went from satisfactory to good, shuttle run stayed the same and the 600 yard run-walk went from satisfactory to good.

Overall, the boys of Beloit High School in Beloit, Kansas, were above average nationally. Perhaps more emphasis should be placed on activities which would aid in the development of the upper body, arm and shoulder muscles along with some jumping exercises. One should certainly continue giving this test each year to verify results of the physical education program, as well as the physical fitness of the students.

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A STUDY OF THE PHYSICAL FITNESS OF THE FRESHMAN BOYS OF BELOIT HIGH SCHOOL, BELOIT, KANSAS. 1963-64

by

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B. S., Kansas State University, 1958

AN ABSTRACT OF A MASTER'S REPORT

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Much of the current interest in the fitness of American youth can be traced to the disquieting reports concerning draft-rejection rates during the Korean War and from the Kraus-Weber test results published in December 1953. These reports made clear that American youth were lacking in physical fitness. In 1956, President Eisenhower established the President's Council on Youth Fitness. In 1960 the late President Kennedy kept the same program as has President Johnson at the present time. Charles B. (Bud) Wilkinson and Stan Musial have headed these programs. Tests have been given over the nation and from these tests national norms were constructed. These norms are divided into four classifications: excellent, good, satisfactory, and poor.

It is hoped that the information in this report will be of value in the planning of the physical education at Beloit High School. The test was administered to all forty-one boys enrolled in the freshman class. The test was administered twice, once in September and again in May.

The items tested included the pullups, situps, shuttle run, standing broad jump, 50 yard dash, softball throw, and the 600 yard run-walk. These were recommended by the President's Council.

The results of the pullup test indicated the students tested were weak in the strength and endurance of the arm and shoulder muscles in the fall testing. There was much improvement in this event between fall and spring.

The strength and endurance of the abdominal muscles of the Beloit High boys was slightly above average as compared to national norms. During the course of the school year the average change in the number of situps that could be performed was an increase of 14.66 situps per boy.

The shuttle run test was used to test speed, coordination, and agility. This was the only event that the boys didn't improve, in fact their time increased .02 per second per boy on the test.

The standing broad jump was used to test the power, coordination, strength, flexibility, and balance of those taking the test. Beloit High students were classified about average on this particular test.

The speed of the boys tested in the 50 yard dash was rated good in the spring testings compared to national norms. The Beloit boys had a mean score of 6.8 seconds.

Another event which indicated a lack of fitness was the softball throw. With a mean improvement of 15.54 feet per boy, there were still 28 per cent of the boys that could not throw the softball 146 feet.

Results of the 600 yard run-walk indicated the boys of Beloit High in the freshman class to be above average in the running of this event. Their endurance was good. Of the forty-one boys tested the mean score in the spring testing was 1 minute 52 seconds.

All in all, it is assumed that the boys of Beloit High School freshman class in Beloit, Kansas, were above average nationally. Perhaps more emphasis should be placed on jumping events, throwing and development of arm and shoulder muscles. One would certainly want to continue giving this test year after year to verify the physical education program, as well as the physical fitness of all students.