

A PERSONALITY STUDY OF ATHLETES AND NON-ATHLETES  
ENROLLED IN THE PUBLIC HIGH SCHOOLS  
OF DAVIESS COUNTY, INDIANA,  
FOR THE SCHOOL YEAR  
1941-1942

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## CHAPTER I

### INTRODUCTION

In the secondary schools of today the athletic program has a very prominent place. Much controversy exists as to the advantages or disadvantages incurring to the participants in such programs. Probably many people who hold very decided opinions about the matter, either pro or con, have little scientific data to support their contentions.

#### I. PREVIOUS STUDIES

Various studies have been made attempting to compare athletes and non-athletes. The most common basis for comparison is through their respective scholastic achievements.

A very thorough review of the studies made upon this basis up to the year 1938 has been made by Snoddy.<sup>1</sup> Here again one may find conflicting claims. However, the consensus of opinion seems to be that there are no significant differences in the scholastic achievements of athletes and non-athletes. Snoddy found in his study of the scholastic achievements of athletes and non-athletes in Greene County,

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1

Marvin L. Snoddy, "A Comparison of Scholastic Achievement of High School Athletes and Non-Athletes of Greene County, Indiana," (unpublished Master's thesis, Indiana State Teachers College, Terre Haute, Indiana, 1938).

Indiana, that neither group was superior in either mental ability or achievement although there was a higher coefficient of correlation between mental ability and achievement of the athletes than the non-athletes.

Other benefits may be derived from athletic participation apart from scholastic achievement. It is pretty well known through casual observation that games and other recreative forms of physical education have a tendency to maintain the individual in a healthy state. The physical and mental selves are very closely related. However, very few scientific studies have been made to ascertain to what extent this relationship exists. A great deal of research is needed along this line. Therefore another basis for comparison of athletes and non-athletes is through the personality traits of each.

<sup>2</sup>  
Carter in his study of the personality adjustment of high school athletes and non-athletes found no significant difference between the two groups as measured by the Symonds Adjustment Questionnaire. He also used a rating scale prepared by himself in an attempt to measure the following traits: cooperation, self-control, leadership,

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2

Gerald Clayton Carter, "Personality Adjustment of High School Athletes and Non-Athletes," (unpublished Master's thesis, Indiana State Teachers College, Terre Haute, Indiana 1938).

reliability, agreeability, and sociability. In so far as the teachers' ratings were reliable he found that the athletes were superior in leadership and sociability with no definite differences in the other traits.

<sup>3</sup> Dierenfield drew the following conclusions from his study of the Personality Adjustment of South Dakota High School Athletes and Non-Athletes:

Athletes as a group fail to possess a different set of personality traits as compared with non-athletes and ~~that~~ athletes are no more balanced in personality adjustment than non-athletes.

<sup>4</sup> Schreiber found in his study of the eleventh year students of John Marshall High School, Cleveland, Ohio, that as far as personality is concerned athletes start the season with poorer personality scores on the average than unselected eleventh year boys, but show a decided improvement by the end of the school year. However, the average score of athletes does not approximate <sup>that</sup> ~~these~~ of eleventh grade boys.

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3

Harold M. Dierenfield, "A Study to Determine the Personality Adjustment of Athletes in Comparison with Non-Athletes as Measured by the Bernreuter Personality Inventory," (unpublished Master's thesis, University of Michigan, 1935).

4

Nicholas Schreiber, "Study of Relationships of Personality Development of Eleventh Grade Boys and Varsity Athletes to Physical Ability and Athletics," (unpublished Master's thesis, University of Michigan, 1935).

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Latarjet tells of an experiment in a school for girls where the most puny and the most retarded scholastically were placed in a special class. In this class two hours of intellectual work were omitted from the usual six and devoted instead to physical education and games. In less than three months there was not only an improvement in the children's physique but also surprising intellectual progress and moreover an improvement in character.

Latarjet states that it would be very strange if what one accomplishes with sub-normal children could not be accomplished with normal ones.

## II. THE PROBLEM

Statement of the problem. The purpose of this study is to make a comparison of the personality traits of athletes and non-athletes in Daviess County, Indiana, and to find if there is any significant difference between the two groups as measured by the Washburne Social-Adjustment Inventory Test.<sup>6</sup> (Thaspic edition)

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A. Latarjet, Physical Education and Mental Hygiene Journal of Health and Physical Education, III, November, 1932, p. 26.

6

A copy of this test may be found in the Appendix of this study, p.

Definition of "athlete" and "non-athlete". In the various studies which have been made several different definitions for the term athlete have been used.

In this study the writer has used the term athlete to mean any boy in senior high school who has actively participated one or more seasons in one or more athletic activity sponsored by the school and thereby earning an athletic letter. Non-athletes are those senior high school boys who have not taken an active part in any sport and therefore have not earned an athletic letter.

### III. METHODS OF PROCEDURE AND SOURCES OF DATA

This study has been limited to the sophomore, junior, and senior boys enrolled in the eight public high schools of Daviess County, Indiana. Freshman boys were not included as they would not have had an opportunity to qualify as athletes according to the definition of an athlete as used in this study.

The sports sponsored by these schools are basketball, track, baseball, and football with basketball receiving the most emphasis. An interesting side light of this study is that the state high school basketball champions of the past two years (Washington) have been included in this study. Other schools included in this study were Epsom, Odon, Elnora,

Plainville, Montgomery, Glendale, and Alfordsville.

The Washburne Social-Adjustment Inventory Test was given to all the boys enrolled in the tenth, eleventh, and twelfth years of the above named schools. Data were taken for 426 individuals, 141 athletes, and 285 non-athletes.

7

The Washburne S-A Inventory contains one essay type and six objective type subtests of social and emotional adjustment. It also contains a subtest of truthfulness, the score of which does not indicate, as do the scores on the other subtests, the degree of adjustment, but does indicate how valid and reliable the total score is. The subtests are designated by the following initial and words: (t) Truthfulness; (h) Happiness; (a) Alienation; (s) Sympathy; (p) Purpose; (i) Impulse-Judgment; (c) Control. However, the author warns that these names are only more or less convenient labels and that the usual significance of these trait names should be superseded and modified by further explanation which the reader may find preceding each table in this study.

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No effort was made in this study to grade the essay type subtest as it was felt the grader's personal judgment might be reflected in the final scores.

## CHAPTER II

### PRESENTATION OF DATA

#### I. ORGANIZATION OF DATA

After the tests were given the scores were tabulated and arranged into two groups, athletes and non-athletes. Tables were constructed showing the distribution of the scores of each group on each of the seven personality traits, truthfulness, happiness, alienation, sympathy, purpose, impulse-judgment, control, and the total or accumulative scores.

#### II. STATISTICAL CALCULATIONS

Throughout the study the central tendency and dispersion of the two groups were compared by the use of the arithmetic mean and the standard deviation.

The arithmetic mean was computed by the formula:

true mean = assumed mean + (or-)  $\frac{\sum d}{N}$  x interval. Sigma or standard deviation was obtained by the formula:

$$= \sqrt{\frac{\sum d^2}{N} - \left(\frac{\sum d}{N}\right)^2} \times \text{interval}$$

The formula for the unreliability, or standard error, of the mean is as follows:  $(\sigma_m = \frac{\sigma}{\sqrt{N}})$

In finding the reliability of the difference of the

means, the standard error of the difference was obtained by the formula  $t_D = \sqrt{(f_M)^2 + (f_m)^2} \times int.$

The significance of the difference in means is indicated by the critical ratio which is found by dividing the difference in means by the standard error of the difference. A critical ratio of 3 is needed to indicate that a true difference exists.<sup>1</sup>

### III. COMPARISONS OF ATHLETES AND NON-ATHLETES ACCORDING TO THE WASHBURNE SOCIAL- ADJUSTMENT INVENTORY TEST

Comparison of athletes and non-athletes on truthfulness. A low score in this test indicates truthfulness or relative freedom from deliberate or intentional inaccuracies in answering the questions of the inventory test.

The t-score is related to test reliability and hence to validity. Its chief purpose is as a screening device to eliminate those tests that are too invalid to form a foundation for satisfactory diagnosis or experimental deductions. For this reason all manuscripts with a t-score of over 30 are discarded. The author states

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1

Ernest W. Tiegs, and Claude C. Crawford, Statistics for Teachers (Cambridge, Mass: Houghton Mifflin Company, 1930).

that the discards usually are from 2 to 5 per cent of the total number. In this study the discards of the non-athletes were 33 out of a total of 285 or 11.6 per cent. Of the athletes out of a total of 141, nine were discarded or 6.4 per cent. In the total number of 426 tests given, forty-two were discarded because of a too high t-score for a per cent of 9.8.

A comparison based on Table I reveals no significant difference in the two groups. The mean of the athletes is 11.83 and for the non-athlete is 10.54. This is a difference of 1.29 in favor of the non-athletes. The reliability of this difference is indicated by the critical ratio, 1.48, which is too small to indicate any true difference between the two groups as far as reliability or validity is concerned.

TABLE I  
TRUTHFULNESS

Score Interval	Athletes	Non-Athletes
30 - 31	1	5
28 - 29	3	5
26 - 27	4	4
24 - 25	6	10
22 - 23	5	5
20 - 21	8	9
18 - 19	4	8
16 - 17	8	16
14 - 15	11	9
12 - 13	9	15
10 - 11	13	26
8 - 9	8	18
6 - 7	16	39
4 - 5	5	13
2 - 3	13	42
0 - 1	18	28
Totals	132	252
Means	11.83	10.54
Standard Deviation	8.18	7.98
Standard Error	.71	.50
Reliability		
Difference in means	1.29 (in favor of n.a.)	
Standard Error of Diff.	.87	
Critical Ratio	1.48	

Comparison of athletes and non-athletes on the basis of the happiness of the individual. A low h-score indicates satisfactory adjustment as revealed in the happiness of the individual. This term includes contentment, a sense of well being, and the feeling that life is worth while.

A comparison based on Table II reveals no significant difference in the two groups. The mean of the athletes is 5.79 and for the non-athletes is 6.61. This is a difference of .82 in favor of the athletes. The reliability of this difference is indicated by the critical ratio, 1.41. This is too small to indicate any true difference between the two groups as far as happiness is concerned.

TABLE II  
HAPPINESS

Score Interval	Athletes	Non-Athletes
26 - 27	0	3
24 - 25	1	1
22 - 23	0	2
20 - 21	2	2
18 - 19	0	4
16 - 17	3	13
14 - 15	7	4
12 - 13	2	3
10 - 11	12	36
8 - 9	9	17
6 - 7	23	29
4 - 5	11	37
2 - 3	12	18
0 - 1	50	83
<hr/>		
Totals	132	252
Means	5.79	6.61
Standard Deviation	5.22	5.88
Standard Error of Mean	.45	.37
Reliability		
Difference in Means	.82 ( in favor of a )	
Standard Error of Diff.	.58	
Critical Ratio	1.41	

Comparison of athletes and non-athletes on the basis of alienation. A low a-score indicates satisfactory social and emotional adjustment as revealed in a sense of non-alienation. This term includes a sense of social membership and acceptance, a sense of basic similarity or common humanity with others, and a sense of psychological security and emotional stability in social situations.

A comparison based on Table III again reveals no significant difference between the two groups on the basis of alienation. The mean of the athletes is 19.60 and that of the non-athletes is 20.59, a difference of .99 in favor of the athletes. The reliability of this difference is indicated by the critical ratio .66 which is much too small to indicate the superiority of either group.

TABLE III  
ALIENATION

Score Interval	Athletes	Non-Athletes
77 - 80	0	1
73 - 76	0	1
69 - 72	1	3
65 - 68	0	0
61 - 64	0	1
57 - 60	2	1
53 - 56	1	4
49 - 52	0	2
45 - 48	3	7
41 - 44	2	6
37 - 40	4	8
33 - 36	8	5
29 - 32	8	15
25 - 28	12	17
21 - 24	10	28
17 - 20	11	18
13 - 16	21	48
9 - 12	18	34
5 - 8	16	35
1 - 4	15	18
Totals	132	252
Means	19.60	20.59
Standard Deviation	13.48	14.72
Standard Error of Mean	1.17	.93
Reliability		
Diff. in Means	.99 (in favor of athletes)	
Standard Error of Diff.	1.49	
Critical Ratio	.66	

Comparison of athletes and non-athletes on the basis of sympathy. As in the previous tables a low s-score indicates satisfactory social and emotional adjustment as reflected in sympathy, that term being defined as sensitive, empathetic, non-negative responsiveness to people.

A comparison based on Table IV shows no significant difference between the two groups as to sympathy. There is a difference in the two means of 1.04 in favor of the athletes. However, the critical ratio of 1.12 is again too small to justify any conclusion that athletes are superior to non-athletes in the matter of sympathy.

TABLE IV

## SYMPATHY

Score Interval	Athletes	Non-Athletes
49 - 50	1	0
47 - 48	0	1
45 - 46	0	0
43 - 44	2	0
41 - 42	0	1
39 - 40	2	4
37 - 38	2	4
35 - 36	2	8
33 - 34	2	6
31 - 32	1	9
29 - 30	5	11
27 - 28	6	17
25 - 26	5	13
23 - 24	11	16
21 - 22	17	18
19 - 20	13	23
17 - 18	14	32
15 - 16	10	24
13 - 14	5	23
11 - 12	10	16
9 - 10	11	9
7 - 8	6	9
5 - 6	4	4
3 - 4	2	1
1 - 2	1	3
<b>Totals</b>	<b>132</b>	<b>252</b>
<b>Means</b>	<b>19.74</b>	<b>20.78</b>
<b>Standard Deviation</b>	<b>8.90</b>	<b>8.46</b>
<b>Standard Error of Mean</b>	<b>.77</b>	<b>.53</b>
<b>Reliability</b>		
<b>Diff. of Means</b>	<b>1.04 (in favor of a)</b>	
<b>Standard Error of Diff.</b>	<b>.93</b>	
<b>Critical Ratio</b>	<b>1.12</b>	

Comparison of athletes and non-athletes on the basis of purpose. A low p-score indicates satisfactory adjustment as revealed in a sense of purpose, this term being defined as desire definitely directed toward a goal involving plan, evaluation, selection, and effort.

A comparison of the two groups based on Table V reveals a difference in the means of 3.96 in favor of the athletes. The critical ratio is 2.75. A critical ratio of 3 is needed to indicate a positive difference. However, the critical ratio of 2.75 is approaching this figure and would lead one to presume that athletes are somewhat better adjusted as to a sense of purpose than non-athletes, although this conclusion is not definitely proved.

TABLE V

## PURPOSE

Score Interval	Athletes	Non-Athletes
89 - 92	0	2
85 - 88	1	0
81 - 84	1	5
77 - 80	0	2
73 - 76	2	10
69 - 72	4	8
65 - 68	5	14
61 - 64	12	23
57 - 60	8	22
53 - 56	9	22
49 - 52	11	23
45 - 48	16	28
41 - 44	11	33
37 - 40	22	22
33 - 36	14	16
29 - 32	7	12
25 - 28	7	8
21 - 24	2	1
17 - 20	0	1
Totals	132	252
Mean	47.33	51.29
Standard Deviation	13.24	13.88
Standard Error of Mean	1.15	.87
Reliability		
Diff. in Means	3.96 (in favor of a)	
Standard Error of Diff.	1.44	
Critical Ratio	2.75	

Comparison of athletes and non-athletes on the basis of impulse-judgment. A low i-score indicates satisfactory adjustment as manifest in impulse-judgment. This term may be defined as the ability to judge well between conflicting impulses, so that satisfactions which are recognized as greater, but more remote or difficult, are not discounted in favor of easier or more immediate but obviously lesser satisfactions.

A comparison of the two groups based on Table VI reveals the small difference of .16 in the two means in favor of the non-athletes. The critical ratio is only .31 which is much too small to indicate that a true difference exists. Therefore from this study one may conclude that no significant difference exists between athletes and non-athletes as manifest in impulse-judgment.

TABLE VI  
IMPULSE-JUDGMENT

Score Interval	Athletes	Non-Athletes
26 - 27	0	1
24 - 25	0	0
22 - 23	1	0
20 - 21	0	2
18 - 19	3	3
16 - 17	2	5
14 - 15	7	5
12 - 13	3	9
10 - 11	8	15
8 - 9	8	26
6 - 7	16	28
4 - 5	28	44
2 - 3	16	37
0 - 1	40	77
Totals	132	252
Mean	5.74	5.58
Standard Deviation	4.92	4.80
Standard Error of Mean	.43	.30
Reliability		
Difference in Means	.16	
Standard Error of Diff.	.52	
Critical Ratio	.31	

Comparison of athletes and non-athletes on the basis of control. A low c-score indicates satisfactory adjustment as shown in a sense of self control, self regulation, and the ability to make and execute plans.

A comparison of the two groups based on Table VII reveals a difference of .16 in the means in favor of the non-athletes. The critical ratio is only .15 which would seem to indicate that no true difference exists between the two groups on the basis of control.

TABLE VII  
CONTROL

Score Interval	Athletes	Non-Athletes
46 - 47	0	3
44 - 45	1	1
42 - 43	1	0
40 - 41	0	2
38 - 39	0	1
36 - 37	2	4
34 - 35	0	2
32 - 33	6	4
30 - 31	3	5
28 - 29	4	6
26 - 27	8	14
24 - 25	3	10
22 - 23	4	7
20 - 21	9	12
18 - 19	2	19
16 - 17	9	9
14 - 15	6	20
12 - 13	6	16
10 - 11	8	18
8 - 9	15	17
6 - 7	14	27
4 - 5	14	19
2 - 3	8	20
0 - 1	6	16
Totals	132	252
Mean	15.08	14.92
Standard Deviation	10.20	10.40
Standard Error of Mean	.89	.65
Reliability		
Diff. in Mean	.16 (in favor of n.a.)	
Standard Error of Diff.	1.10	
Critical Ratio	.15	

Comparison of athletes and non-athletes on the basis of total score. A comparison of the two groups based on Table VIII reveals a difference between the two means of 5.55 in favor of the athletes. The critical ratio is 1.31 which is too small to signify that a true difference exists.

A comparison of the scores of the two groups above with the standardized norms reveals that the subjects of this test scored high and were not quite as well adjusted as they should have been.

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TABLE VIII  
TOTAL SCORE

Score Interval	Athletes	Non-Athletes
260 - 269	0	1
250 - 259	0	0
240 - 249	0	3
230 - 239	1	1
220 - 229	0	4
210 - 219	2	0
200 - 209	4	4
190 - 199	4	6
180 - 189	3	10
170 - 179	4	9
160 - 169	3	13
150 - 159	8	11
140 - 149	8	19
130 - 139	10	22
120 - 129	12	30
110 - 119	13	25
100 - 109	17	26
90 - 99	13	22
80 - 89	13	19
70 - 79	8	14
60 - 69	8	11
50 - 59	1	2
<b>Totals</b>	<b>132</b>	<b>252</b>
<b>Mean</b>	<b>121.67</b>	<b>127.22</b>
<b>Standard Deviation</b>	<b>39.24</b>	<b>40.58</b>
<b>Standard Error of Mean</b>	<b>3.41</b>	<b>2.55</b>
<b>Reliability</b>		
<b>Diff. in Mean</b>	<b>5.55 (in favor of a)</b>	
<b>Standard Error of Diff.</b>	<b>4.258</b>	
<b>Critical Ratio</b>	<b>1.31</b>	

TABLE IX  
SUMMARY OF TEST DATA

	Truthfulness	Happiness	Alienation	Sympathy	Purpose	Impulse- Judgment	Control	Total
(Athlete Mean(Non-Athlete	11.83 10.54	5.79 6.61	19.60 20.59	19.74 20.78	47.33 51.29	5.74 5.58	15.08 14.92	121.67 127.22
Standard (Athlete Deviation (Non-Athlete	8.18 7.98	5.22 5.88	13.48 14.72	8.90 8.46	13.24 13.88	4.92 4.80	10.20 10.40	39.24 40.58
Difference in mean	1.29	.82	.99	1.04	3.96	.16	.16	5.55
In favor of	n.a.	a.	a.	a.	a.	n.a.	n.a.	a.
Standard Error of Difference	.87	.58	1.49	.93	1.44	.52	1.10	4.258
Critical Ratio	1.48	1.41	.66	1.12	2.75	.31	.15	1.31
Chances in 100 of a true difference	93	92	74	86	99.7	62	56	90
Norms	7-19 (11)	1-5 (3)	7-22 (14)	9-18 (13)	40-59 (49)	2-6 (4)	6-17 (12)	92-119 (107)

## CHAPTER III

### SUMMARY AND CONCLUSION

The results of this investigation may be summarized from Table IX, page 25, and are stated as follows:

1. Neither group established definite proof of superiority in any of the various personality traits.
2. Breaking the inventory down into its eight parts one finds a difference in the mean favoring the athletes five times with the remaining three in favor of the non-athletes.

Of the three in favor of the non-athletes, truthfulness, impulse-judgment, and control, one finds the chances are 93, 62, and 56 out of 100 respectively that a true difference exists. Therefore, the chances are little better than 50-50 that a true difference does exist as far as impulse-judgment or control of the two groups are concerned.

On the other hand, of the five in favor of the athletes one finds the chances are 92, 74, 86, 99.7, and 90 out of 100 that a true difference exists respectively in the traits of happiness, alienation, sympathy, purpose, and the total score.

This would lead one to the conclusion that the athletic group does enjoy an advantage over the non-athletic group

in the personality traits tested. However, this difference may not be due to participation in athletics and the difference in the mean of the truthfulness score may enter into the final results.

3. The most noticeable difference between the two groups was manifested in the sense of purpose. Here the athletes practically established a definite superiority.
4. A comparison of the scores of both groups with the standardized norms shows that both groups are more poorly adjusted than normal high school groups should be.
5. In the matter of investigating the personality traits of athletes and non-athletes further study is needed.

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APPENDIX