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An investigation of variables differentiating between good and poor athletes

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AN INVESTIGATION OF VARIABLES DIFFERENTIATING BETWEEN GOOD AND POOR ATHLETES

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CHAPTER I

INTRODUCTION

One of the most important problems facing college athletic officials is their selection of player personnel. Each year large numbers of outstanding high school performers enter institutions of higher learning to attain a degree and to gain athletic recognition. In the end, however, success comes to approximately one in five.

The reasons for this high rate of mortality are manifold. Academic failure claims almost half of this group. Substandard physical ability remains a factor since the yardstick of competition is more demanding in college than in high school. Surprisingly, however, some athletes endowed with both mental and physical superiority also fail. A common belief is that failure is caused by lack of adequate motivation or important personality characteristics.

The prospective student-athlete is selected on a number of variables. Initially, the individual is screened for his intellectual ability. Each institution uses its own methods, and this responsibility rests with the Dean of Admissions. College Entrance Examinations, including intelligence tests, class rankings, and interviews are all used to aid in proper selection.

The physical ability of the individual is evaluated with equal care. College coaches are expert judges within their chosen fields and very often observe the prospective athlete during actual participation. Professional recruiters, hired by athletic associations, report regularly. Newspaper

sport writers are interviewed. Most colleges, in fact, subscribe to local newspapers in lucrative recruiting areas and maintain files on promising individuals. High school coaches send weekly comments concerning athletes within their area to college officials. The recent innovation of scouting by way of motion pictures is a further aid in this appraisal.

A great many studies have demonstrated the expected relationship between physical capacity and athletic success. Representative of these is one by Rogers (in 4), who, assuming that "making the team" was the criterion of athletic success, compared the Strength Index of athletes and non-athletes. This index is based on measures of lung capacity, right and left hand grips, back strength, leg strength, and arm strength.

The results showed that the athletic group was superior in all respects and that the "five best athletes'" median score was not attained by any of the other subjects (in 4). Granger (in 7), in a similar study, compared 104 athletes with 392 non-athletes. Highly significant results were obtained in favor of the athletic group. Less than 10% of the non-athlete subjects approached the mean of the athletic group.

The personality characteristics of the prospective athlete may be investigated in several ways. Questionnaires are often sent to principals, teachers, and coaches concerning his adjustment and leadership abilities. Studying the importance of the sociability factor, Biddulph (2) found that the high school athletes scored significantly higher in self-adjustment as measured by the California Test of Personality than a non-athletic group. He also found significantly higher scores in social adjustment as measured by teachers' ratings and sociograms in the athletic group. Sperling (19)

investigated the relative adjustment of college students by comparing varsity athletes, intramural athletes and non-athletes. He used several scales, and his conclusions were that favorable adjustment, ascendance, and extroversion scores significantly favored the athlete groups but showed no difference between the varsity and intramural groups. Carter (6) studied 100 athletes and 100 non-athletes and found significantly higher mean scores on leadership and sociability, as well as personality characteristics among the athletic group.

Other investigators have attempted to isolate and measure emotional factors that are presumed to be important variables in athletic success. Johnson (13) used a physiological index consisting of heart rate, blood sugar, and blood pressure measures, as well as a subjective five-point rating scale of "tension". The subjects were fifteen football players and five wrestlers. He concluded that there were differences in tension level between the two groups, and that extreme tension inhibits performance. Husman (12) attempted to compare aggression in boxers and wrestlers with a control group of cross country runners. Using the Rosenzweig P. F. Test, six selected TAT pictures and a twenty item sentence completion; all subjects were evaluated for overall aggression. Unexpectedly the boxers scored significantly lower than the other two groups. Stish (20) compared a group of college varsity athletes and a group of non-athletes on the Guilford-Martin Inventory of Factors and the Guilford-Martin Personnel Inventory. The results showed the athletic group had significantly higher mean scores in self-confidence and were more masculine than the controls. LaPlace (17) compared personality with success in two groups

of professional baseball players. The successful group consisted of forty-nine major league players, and the failure group contained sixty-four class "D" players. By scores obtained on the M.M.P.I., he found that the success group scored significantly lower on the Sc scale and the failure group significantly higher on the Pd scale. He concluded that the major league players were better adjusted and showed more initiative, self-discipline, and sociability. Both groups scored significantly higher than the general population on the Hysteria, Mf, and Hypomania scales indicating a tendency towards worry, sensitivity, and vigorousness.

An attempt to evaluate personality traits of champion athletes by the use of the Rorschach Test was made by Johnson, Hutton, and others (15). Twelve National Champions or All-Americans were given the test which was then scored blindly by a skilled analyst. Their chief characteristics were found to be a high level of intellectual aspiration, evidence of aggression, emotion lacking strict controls, high anxiety, and feelings of self-assurance. Their conclusion was that "there is a need for competitive achievement and suggests that being a champion was a matter of psychological necessity".

Booth (3) administered the M.M.P.I. to college students and compared the personality ratings of freshmen athletes and non-athletes, upperclass athletes and non-athletes. The athlete groups were further broken down into team and individual sport participants. The varsity were also rated on competitiveness. He found that the non-athlete scored significantly higher on the Mf scale than the athlete groups, and that varsity athletes scored significantly lower on the A scale than all the other groups. Upper-

class students scored significantly higher than the freshmen on the Dominance (Do) scale, and the upperclass non-athletic group scored significantly higher than all the other groups on the Social Responsibility (RE) scale. A further purpose of the study was to select those items from the M.M.P.I. which would distinguish between good and poor competitors. By using the rank order and a rating method, he divided the varsity athletes into high and low competitiveness groups. An item analysis, based on the upper and lower quartiles, was used to select twenty-two of the M.M.P.I. items which significantly discriminated competitiveness between the groups. The items were cross-validated on a group of track team members. A correlation of .67 was obtained between scores on the twenty-two items and an independent rank ordering of the team members by the track coach.

These investigations show evidence of personality differences between athletic and non-athletic groups. Using membership on a varsity squad as a criterion of athletic success, some differences are suggested by Booth (3) between successful and less successful athletes. Some freshmen team members, however, will be the athletic successes of the future, and it seems reasonable to assume that they already possess some of the characteristics required. This confounding might be expected to lead to smaller differences than actually exist between the successful and nonsuccessful athletes. No study has been found which attempts to differentiate directly between these groups within varsity athletes.

The purpose of the present study is to attempt to isolate personality variables which are characteristic of those athletes who fulfill their promise of success and which might be absent or present to a lesser degree

in the less successful varsity squad members. Thus, the prediction of success presently based on mental and physical ability may be increased.

CHAPTER II

PROCEDURE

One hundred and nineteen varsity and freshmen athletes at the University of Richmond, members of the football, basketball, track and baseball teams were used as subjects. They were rank-ordered on the basis of their coaching staff's estimate of their ability as compared with their teammates. The present staff of experienced coaches each judged the squads with which they were associated.

Each athlete's name was typed on a card and these were then shuffled in a random manner and presented to each coach independently. The instructions were, "Each member of your squad is represented in this stack of cards; please separate the players representing 25% of the total team that in your opinion are the best and place them in a pile. Do not rank by the position that is played, just pick out the best players." After having done this, he was instructed to separate the worst 25%, then the second best group and finally the third best group. Following this procedure, the coaches were instructed to rank-order the names in each group. The final ranking for each athlete was obtained by summing the ranks of each coach for each athlete.[1]

These summed rankings were the basis for the formation of the treatment groups. The best 25% and the worst 25% for each sport was treated separately. All the sports were then combined and the over-all success and over-all nonsuccess groups were also compared. Anticipating a possible systematic difference between freshmen and varsity athletes, the freshmen

were removed from all the groups and looked at separately. Because of the small numbers involved, this group was divided at the median.

All subjects were then administered the General Motor Ability Test, after Barrow (1), in order to assess possible differences in physical ability among the groups. The test consisted of the following three items; the standing broad jump, the medicine ball put, and the agility run and was given during the season of each sport at a regularly scheduled practice session thus controlling the variable of physical conditioning. In an attempt to insure adequate motivation, the experimenter announced that the test measured athletic ability and that the scores obtained by each athlete would be posted on the bulletin board so everyone would have a chance to compare his score with those of his teammates. A Physical Efficiency (P.E.) score was obtained by converting the raw scores of each subtest to T scores and summing to form a total P.E. score.

Because of the experimenter's position as athletic trainer for all these teams, and his subsequent knowledge of the ability of the athletes, the question of bias might arise. Since the measures used in this test are objectively scored, it is doubtful that such bias entered in to any important degree.

The A. C. E. scores as well as height and weight measures were also obtained for each subject. It was felt that these measures might make a contribution to group differences and therefore should be investigated.

The Minnesota Multi-phasic Personality Inventory (M.M.P.I.) and the Iowa Picture Interpretation Test (IPIT) were administered in groups

of approximately ten subjects each for the purpose of obtaining measures of personality variables which might exist among the subjects. Scores were obtained on the clinical scales of the M.M.P.I. as well as Booth's competitiveness scale and the Achievement, (A), Insecurity,(I), Blandness, (B), and Hostility,(H) scale scores from the IPIT. Two subjects were eliminated from further consideration because of markedly deviant F scores on the M.M.P.I.

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[1] It is recognized that ranks, since they are on ordinal scale, cannot be meaningfully summed unless the assumption is made that the differences between the ranks given by any single judge are the same as the differences between the ranks of the other judges. Such an assumption cannot be made here. However, since inter-rater reliability was high (see Appendix A), a better procedure might have been to use the ranking of a single coach for the differentiation of the success and non-success groups.

CHAPTER III

RESULTS

The mean A.C.E. scores of the experimental groups are presented in Table I. The differences between these means were tested for significance utilizing the standard t-test procedure for random groups. The results showed that the over-all difference between the good vs poor groups was significant, ($t = 3.28$, $P < .05$), suggesting that the good athlete has less academic potential than the poor athlete. Similar results were obtained by the varsity baseball group and the freshmen football team. The varsity football means closely approached significance. The direction of the difference is the same for all groups even in the absence of statistical significance.

The mean P.E. scores as well as height and weight measures are presented in Table II. The t-tests show the difference in P.E. means between the over-all success and nonsuccess groups is significant as is the difference for the varsity basketball group. This suggests that good athletes have greater physical capacity than poor athletes.[1] Again the direction of all difference is remarkably consistant.

The mean height of the successful varsity basketball group was significantly greater than the nonsuccessful group. No other group showed height differences nor were any of the mean weight measures obtained from the groups found to be significant.

The mean scale scores of the IPIT are presented in Table III. None of these scales differentiated among any of the group means nor were any consistant trends noted.

TABLE I

A.C.E. SCORE MEANS

TOTAL GROUPS

	N	M	t-Test
Over-all Success	27	83.0	3.28*
Over-all Nonsuccess	27	98.1	
Freshmen Success	20	87.1	1.22
Freshmen Nonsuccess	20	96.5	

INDIVIDUAL SPORTS GROUPS

	N	M	t-Test
Football Success	10	71.9	1.96
Football Nonsuccess	10	88.8	
Freshmen Football Success	4	75.0	2.80*
Freshmen Football Nonsuccess	4	98.5	
Basketball Success	5	80.0	1.66
Basketball Nonsuccess	5	92.0	
Freshmen Basketball Success	5	82.8	.53
Freshmen Basketball Nonsuccess	4	94.2	
Baseball Success	5	84.6	2.84*
Baseball Nonsuccess	5	116.0	
Freshmen Baseball Success	7	89.8	1.04
Freshmen Baseball Nonsuccess	7	91.7	
Track Success	7	99.6	1.60
Track Nonsuccess	7	103.0	
Freshmen Track Success	4	99.8	.09
Freshmen Track Nonsuccess	5	101.4	

*Significant beyond the .05 level.

TABLE II

P.E., HEIGHT AND WEIGHT SCORE MEANS

TOTAL GROUPS

	P.E.			HEIGHT		WEIGHT	
	N	M	t	M	t	M	t
Over-all Success	27	183.3	2.70*	73.3	.88	187.1	.196
Over-all Nonsuccess	27	171.7		72.5		185.9	
Freshmen Success	20	177.3	.35	71.3	1.50	170.4	.22
Freshmen Nonsuccess	20	174.7		71.7		172.4	

INDIVIDUAL SPORTS GROUPS

	P.E.			HEIGHT		WEIGHT	
	N	M	t	M	t	M	t
Football Success	10	184.1	1.04	72.7	.92	195.3	.94
Football Nonsuccess	10	176.3		72.8		200.7	
Freshmen Football Success	4	187.5	1.49	71.8	2.00	182.0	1.63
Freshmen Football Nonsuccess	4	175.5		73.0		193.8	
Basketball Success	5	191.8	2.46*	76.2	21.0*	189.0	2.29
Basketball Nonsuccess	5	171.6		72.2		170.0	
Freshmen Basketball Success	5	179.0	.31	73.1	.39	169.7	.50
Freshmen Basketball Nonsuccess	4	169.0		72.0		166.2	
Baseball Success	5	180.6	1.22	74.0	0.0	188.0	2.02
Baseball Nonsuccess	5	170.4		74.0		200.0	
Freshmen Baseball Success	7	174.0	.58	71.0	0.0	168.0	.12
Freshmen Baseball Nonsuccess	7	177.0		71.0		167.0	
Track Success	7	178.1	1.49	72.5	.79	172.0	.34
Track Nonsuccess	7	166.1		71.4		176.0	
Freshmen Track Success	4	183.2	.61	69.8	.66	165.0	.09
Freshmen Track Nonsuccess	5	175.6		71.8		166.0	

*Significant beyond the .05 level.

TABLE III

IPIT SCALE SCORE MEANS

TOTAL GROUPS

Key:
S - Success
NS - Nonsuccess
FB - Football
Bsktb - Basketball
BB - Baseball
Fr - Freshmen
Tr - Track

	A.I.			I		B		H	
	N	M	t	M	t	M	t	M	t
Over-all S	27	56.5	1.11	58.5	.44	57.9	.151	67.5	.562
Over-all NS	27	54.8		59.2		58.1		68.3	
Freshmen S	20	59.6	.56	57.4	.21	59.2	.636	63.5	0.0
Freshmen NS	20	57.8		56.8		61.3		63.5	

INDIVIDUAL SPORTS

	N	M	t	M	t	M	t	M	t
FB S	10	56.6	.67	59.3	.46	60.3	.50	64.0	.21
FB NS	10	54.3		60.6		59.1		67.5	
Fr FB S	4	63.0	1.65	55.0	1.66	63.0	.10	58.5	.01
Fr FB NS	4	58.7		60.0		62.5		58.7	
Bsktb S	5	56.8	.32	56.4	.33	57.8	0.0	69.0	.76
Bsktb NS	5	55.8		55.2		57.8		71.2	
Fr Bsktb S	5	60.0	.72	62.4	1.61	55.4	.55	62.2	1.97
Fr Bsktb NS	4	56.7		55.5		57.8		70.0	
BB S	5	54.8	.57	58.0	.46	57.6	1.76	69.6	1.59
BB NS	5	58.0		57.4		62.0		62.6	
Fr BB S	7	54.7	1.55	57.0	.65	59.6	.88	65.2	1.38
Fr BB NS	7	60.4		55.1		62.4		62.0	
Tr S	7	57.3	1.6	59.4	.47	54.6	.06	69.0	.61
Tr NS	7	52.4		61.4		54.3		72.2	
Fr Tr S	4	59.8	.80	54.0	1.06	59.2	.70	67.0	.56
Fr Tr NS	5	54.0		57.6		61.6		64.8	

The mean competitiveness scale scores are found in Table IV. A significant difference was obtained between the means of the over-all groups with the better athlete showing a greater degree of competitiveness as measured by this scale. The differences in the freshmen group are not significant. Within the sports, the football and baseball varsity means yield significant differences as does the freshmen track group, all suggesting higher competitiveness for the better athlete. The varsity track group however, surprisingly showed a significant difference in the opposite direction.

The means of the clinical scales of the M.M.P.I. are shown in Table V. These means were analyzed through an analysis of variance by means of a Lindquist (18) Type I design in which the good and poor groups were the "between S" factor and the ten clincial scales and the good and poor groups I scale interaction were "within S factor". The summary tables of the analysis for the various groups are presented in Tables VI, VII, and VIII. Table VIII is the total group separated at the median.

None of the F's for between successful and nonsuccessful groups nor any interaction between scales and groups was significant. The highly significant F's for the scales merely suggests an inequality of the clinical scale means. It can be concluded that the athletes do not differ significantly with respect to personality variables as measured by the M.M.P.I.

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[1] The possibility exists that the coaches rankings of the athletes into success and nonsuccess groups was inadvertently influenced by previous impressions they had gathered concerning the athletes' possession of the qualities measured by the P. E. test (see Appendix B) to the extent that this influence was present would cause a significant difference in the P. E. measures between the success and nonsuccess groups.

TABLE IV

COMPETITIVENESS SCORE MEANS

TOTAL GROUPS

	N	M	t
Over-all Success	27	12.6	2.0*
Over-all Nonsuccess	27	11.7	
Freshmen Success	20	11.1	0.0
Freshmen Nonsuccess	20	11.1	

INDIVIDUAL SPORTS GROUPS

	N	M	t
Football Success	10	12.7	4.22*
Football Nonsuccess	10	10.8	
Freshmen Football Success	4	10.7	0.0
Freshmen Football Nonsuccess	4	10.7	
Basketball Success	5	12.8	2.29
Basketball Nonsuccess	5	11.4	
Freshmen Basketball Success	5	11.6	1.56
Freshmen Basketball Nonsuccess	4	12.2	
Baseball Success	5	13.8	2.37*
Baseball Nonsuccess	5	12.4	
Freshmen Baseball Success	7	11.4	1.01
Freshmen Baseball Nonsuccess	7	10.4	
Track Success	7	12.0	3.25*
Track Nonsuccess	7	13.4	
Freshmen Track Success	4	13.2	4.44*
Freshmen Track Nonsuccess	5	11.6	

*Significant beyond the .05 level.

TABLE V

M.M.P.I. SCALE MEANS

TOTAL GROUPS

Key:
S - Success
NS - Nonsuccess
FB - Football
Bsktb - Basketball
BB - Baseball
Fr - Freshmen
Tr - Track

	N	Hs	D	Hy	Pd	MF	Pa	Pt	Sc	Ma	Si
Over-all S	27	13.8	17.5	18.7	23.2	23.3	8.5	27.2	26.5	21.5	24.2
Over-all NS	27	13.7	16.9	19.4	22.7	22.3	8.8	26.7	27.3	22.9	21.0
Freshmen S	20	13.9	19.5	23.5	23.5	24.4	8.4	28.6	27.9	21.6	24.6
Freshmen NS	20	12.8	18.5	23.1	22.8	24.0	9.2	27.5	27.1	23.4	24.1

INDIVIDUAL SPORTS

	N	Hs	D	Hy	Pd	MF	Pa	Pt	Sc	Ma	Si
FB S	10	14.8	18.1	18.2	22.2	21.3	8.8	28.4	25.5	23.1	26.4
FB NS	10	15.9	15.9	19.7	22.8	20.6	8.6	26.9	26.4	23.7	18.0
Fr FB S	4	12.8	19.2	18.5	22.5	23.5	8.2	28.0	28.7	24.2	28.0
Fr FB NS	4	12.5	16.8	20.0	21.2	20.2	10.5	24.5	24.7	22.2	18.2
Bsktb S	5	12.6	17.2	20.8	22.4	22.8	7.0	24.8	25.0	20.2	22.4
Bsktb NS	5	14.2	20.6	21.8	23.0	25.6	8.2	28.4	26.4	21.6	26.6
Fr Bsktb S	5	14.6	20.6	21.0	23.2	24.8	8.0	28.5	26.0	22.8	25.8
Fr Bsktb NS	4	16.0	19.8	21.0	22.5	24.2	8.2	26.5	28.0	21.8	24.8
BB S	5	10.8	16.8	19.0	24.0	25.0	7.6	26.8	25.0	19.8	23.8
BB NS	5	11.6	16.2	16.6	20.0	22.8	10.6	25.4	28.0	21.6	20.6
Fr BB S	7	14.6	21.1	22.3	23.4	25.1	9.4	31.3	30.0	19.3	27.0
Fr BB NS	7	12.6	17.0	19.7	21.9	23.4	8.9	27.3	28.1	23.1	24.3
Tr S	7	10.0	14.7	16.0	22.8	22.8	8.3	25.7	26.8	21.8	22.6
Tr NS	7	11.4	16.1	20.1	24.8	22.1	8.5	25.7	28.1	22.0	19.1
Fr Tr S	4	13.5	17.2	21.0	24.7	24.2	8.0	26.0	26.8	20.0	17.8
Fr Tr NS	5	10.0	16.2	16.6	25.6	27.0	9.2	28.0	28.0	26.6	26.6

TABLE VI

GOOD VS POOR ATHLETE GROUPS

SUMMARY TABLE - ANALYSIS OF VARIANCE OF MEANS

SOURCE	df	ss	ms	F
BETWEEN ATHLETES	7	47.47	6.78	
B - Good vs Poor	1	1.68	1.68	
Error (b)	6	45.87	7.64	
WITHIN GROUPS	72	2,652.2		
A - scales	9	2,483.0	275.88	106.15*
A B Scales x Ability	9	26.4	2.93	
Error	54	142.1	2.63	
TOTAL	79	2,699.76		

*Significant beyond the .05 level.

TABLE VII

GOOD VS POOR FRESHMEN GROUPS

SUMMARY TABLE - ANALYSIS OF VARIANCE OF MEANS

SOURCE	df	ss	ms	F
BETWEEN ATHLETES	7	83.55	11.94	
B - Good vs Poor	1	9.9	9.90	
Error (b)	6	63.65	10.61	
WITHIN GROUPS	72	2,827.7		
A - scales	9	2,602.15	289.13	74.33*
A B Scales x Ability	9	15.46	1.72	
Error	54	210.04	3.89	
TOTAL	79	2,911.2		

*Significant beyond the .05 level.

TABLE VIII

MEDIAN GROUPS

SUMMARY TABLE - ANALYSIS OF VARIANCE OF MEANS

SOURCE	df	ss	ms	F
BETWEEN ATHLETES	7	55.6	7.94	
B - Good vs Poor	1	4.9	4.90	
Error (b)	6	50.7	8.45	
WITHIN GROUPS	72	2,493.4		
A - scales	9	2,346.0	260.66	105.53*
A B Scales x Ability	9	13.8	1.53	
Error	54	133.6	2.47	
TOTAL	79	2,549.0		

*Significant beyond the .05 level.

CHAPTER IV

DISCUSSION

It should be kept in mind as this study is discussed, that it is difficult to compare it with previous studies of this type because of its uniqueness. There seems to have been no previously published investigation that has attempted to differentiate between such closely related college athletic populations as good and poor varsity athletes. Several studies, previously mentioned, have compared the athlete and the non-athlete, the varsity athlete and the intramural athlete, and the successful and the unsuccessful professional athlete. However, in each of these cases a more molar distinction is possible between the groups on the basis of the criterion variable. The conclusions drawn from this study, in comparison with these, must therefore be kept general in nature.

Another important fact that should be understood is that these subjects were drawn from a college that is to be considered small in its participation in intercollegiate athletics. This means that many of the participants have no athletic scholarship aid and are the less sought after athletes and although as most of the better athletes do receive financial aid of some sort, and hence are selected by their coaches, many have been overlooked for varicus reasons, including their lesser degree of ability.

The A.C.E. score means favor the poorer athletes in both the over-all group and within the individual sports. Significant differences in the over-all group, the freshmen football, and varsity baseball were found and the t-tests of the football, basketball, and track groups approached

significance. The results are strongly indicative that the good athlete is less academically inclined than the poor one. This is not entirely unexpected however, as the successful athlete would devote more time and attention to physical pursuits as opposed to academic ones than his physically inferior counterpart. Whether these differences reflect different capacities can't be determined from this study.

The Motor Ability Test means produced differences in all the groups favoring the better athletes. Significant differences in the over-all group and the basketball group were found. This is an expected result, the better athlete, in general, possessing more physical ability than the poor one. The mean P.E. scores for all the groups is much higher than the general college mean T-score of 150 (1). This general finding agrees with Rogers (in 4) and Granger (in 7) that the athlete does have greater physical ability than the nonathlete.

The height means showed little variability except in the varsity basketball group where an extremely large and significant difference was found ($t = 21.0$). Observation of present-day basketball squads with the emphasis upon height seems to verify this finding.

Differences in weight showed a constant trend in favor of the varsity athlete group over the corresponding freshmen group. The age and maturity factors have an important bearing here as the varsity groups are, as a rule, older and more mature physically.

The scales of the IPIT showed neither a significant mean difference nor any trends within the means for any of the groups tested. The scales did however, closely parallel those obtained by the general college population, Johnston (16). In the over-all groups as well as the freshmen groups,

the greatest mean difference did not exceed three points from the general mean.

Similarly the clinical scales of the M.M.P.I. showed no constant trends within either the total group means or the separate sports means. Generally, the over-all success group was slightly higher on the neurotic triad and lower on the psychotic triad than the nonsuccess group. This trend was also true for the total freshmen groups but does not hold when the groups are broken down into separate sports. Within the scales themselves, there was no single variable that occurred consistently high or low.

These results suggest that the M.M.P.I. and the IPIT are poor indicators of any personality variables that are differentially present in good and poor athletic groups. Apparently these scales are too roughly defined for the sharp distinction needed between the two normal groups under observation.

The M.M.P.I. scale means do conform however, to the general college population results presented by Brown (5) and Goodstein (9). The Ma, Pd, Hy, and Hs scales are slightly higher and the Mf scale slightly lower than the college group but none of these scales exceeds three T score units in difference. Higher variability was found among both the freshmen total group means but again, there was no consistent pattern present within the scales. This finding tends to disagree with the general opinion that the college athlete's personality is different from the personality of the general college student.

The Si scale of both the over-all success and nonsuccess groups and corresponding freshmen groups are between 45 and 50 T score units

suggesting high sociability. This agrees with the findings of Biddulph (2), Sperling (19), and Carter (6) that the athlete seems to possess an outgoing type of personality.

Comparing the scale means with those of LaPlace (17) presents difficulties because of the differences of the two populations under consideration. The entire college group scored much higher on the scales than the noncollege subjects in the LaPlace study. The Pd score means of the successful group of baseball players was significantly lower than the mean of the failure group. A reversal was found in the present study, the over-all success group, the varsity baseball group as well as the freshmen success group all scored higher on the Pd scale than the corresponding nonsuccess groups. The Sc scale means of the two studies are similar in the respect that the baseball failure group, the over-all nonsuccess group and the varsity baseball nonsuccess group scored higher than the success groups. However, within the freshmen baseball groups, the success group scored slightly higher.

Booth (3) found that the nonathlete scored significantly higher on the Mf scale than the athlete. The present study agrees with this trend concerning the over-all groups. The freshmen groups however, show little or no difference between the general college population.

The differentiation of the competitiveness scale, between the success and nonsuccess over-all groups appears to be an important finding. The search for the athlete that possesses both the physical ability and a strong desire to succeed has become increasingly important, and any indication of prediction in this area deserves attention. Within the sports themselves, the significance of the football group tends to verify the common

assumption that competitiveness is an important prerequisite for success in body contact sports and tends to rank almost as high as physical ability in the judgement of coaches within these areas.

The reversal of the varsity track group defies explanation because the over-all trend favors the good athlete's mean score over the poor. It is true that the motor test means for this group was the poorest of all groups, including the freshmen, yet it does not stand to reason that this group should have less desire than the others. Possibly because track is classified as an individual team sport, there are different types of competitiveness; yet Booth obtained a high correlation (.67) on a cross-validation study of the scale with a track team. To further cloud the issue, the differences are reversed for the freshmen track group. The varsity means may have been a chance fluctuation or they may reflect a truly deviant athletic group.

The significance between the over-all success group and the non-success group on the competitiveness scale means and the P.E. score means combined with the lack of significance between the corresponding freshmen success and nonsuccess groups appears to be a pertinent result. The predictive values of these two measures would seem to be seriously impaired because the population to which the predictions would normally be made would be to a freshmen athletic group.

However, the reason for the failure of the freshmen groups to differ significantly could be the separation of the group at the median instead of the less molar distinction between the most successful 25% and the least successful 25%. Because of the potential importance of the findings the freshmen groups were divided at the corresponding quartiles and the results

showed no significant differences present. This result in addition to the nonsignificance of the median groups appear to be a most important finding in the sense that these measures seem to weaken the predictive possibilities of these variables.

An indication that differences in these variables appear to develop at some point later in the athlete's college experience than the freshman year seems evident. The increased importance placed upon the winning of athletic contests from the coaches, alumni, and associates combined with the magnitude of losing such contests could influence the competitiveness scale means of both the success and nonsuccess groups. The association of the athlete with both teammates and opposition having a greater degree of physical ability than found in either high school or freshmen college athletics would appear to influence the members of these groups also. The successful athletes would seem to cultivate a sharp degree of competitiveness as well as to obtain a greater degree of physical efficiency whereas the nonsuccessful athletes, facing failure in this field, would seek other areas aside from athletics for success. The appearance of a greater differentiation between the two groups would therefore become evident after the freshman year.

The results of this study do not adequately answer the basic question, "Are there different personality traits present or absent in better athletes as compared with the poorer athletes?" It is still the overwhelming consensus of opinion of athletic officials that there are differences. However, the conclusions drawn from this investigation indicate that neither the scales of the M.M.P.I. nor the IPIT has revealed these traits. A need

for the development of a personality test to differentiate between these groups seems obvious. The competitiveness scale may be the basis for further research in this area. The possibility of using the Motor Ability Test as a criterion variable, since it seemed to predict physical ability quite accurately, combined with the competitiveness scale, measuring the desire to compete, deserves further exploratory study.

CHAPTER V

SUMMARY

One hundred and nineteen freshmen and varsity athletes on the football, basketball, track and baseball squads were rank-ordered from best to worst by their respective coaching staffs. From these rankings, the best one-fourth and the worst one-fourth of each team were used as a test group. All the sports were then combined to form an over-all success group and an over-all nonsuccess group. The freshmen were removed and divided at the median to form similar groups.

All subjects were administered the General Motor Ability Test to ascertain differences in physical ability. The M.M.P.I. and the IPIT were given in an attempt to isolate personality variables that might exist between the groups. A.C.E. scores and height and weight measures were also obtained and investigated to observe the effect of these variables upon the groups.

The results of the General Motor Ability Test showed significant differences between the over-all success group and the nonsuccess group, and between the success and nonsuccess basketball groups. The basketball group was also found to be significant in height. There were no significant differences in weight.

No significant differences were found within the scales of either the M.M.P.I. or the IPIT yet both over-all groups conformed closely to the general college population mean scores on all the scales of each test.

The A.C.E. score means favored the poor athlete over the good athlete in all groups and significant differences were found between the over-all groups as well as the freshmen football and varsity baseball

test groups.

The competitiveness scale of the M.M.P.I. was found to be significant between the over-all success and over-all nonsuccess groups and the football, baseball varsity groups and the freshmen track group favoring the better athlete. A reversal was found in the varsity track groups, the poor athlete group scoring significantly higher on the scale than the good athlete group. In spite of this, it is felt that the competitiveness scale should be investigated further as having predictive possibilities.

The predictiveness of the competitiveness scale and the P. E. scores appear to be limited to the upperclass athletic group however. Although significant differences were found between the over-all success group and the over-all nonsuccess group, the freshmen groups did not differ when separated into the corresponding groups at the median or at the upper and lower 25% levels. This finding places a severe limitation upon these two measures as the group to which a prediction would be most logically made, would be a freshman athletic group.

APPENDIX A

RANK ORDER CORRELATIONS FOR BETWEEN RATERS

Football	Rater A and B	.918
Football	Rater A and C	.934
Football	Rater B and C	.935
Basketball	A and B	.982
Baseball	A and B	.936

*Track not included as rank-ordering was done by one coach.

APPENDIX B

THE BARROW TEST OF GENERAL MOTOR ABILITY FOR COLLEGE MEN

Item	Factor	Objectivity	Reliability	Correlation with the criterion
*Standing Broad Jump	Power	.996	.895	.759
*Zig zag run	Agility	.996	.795	.735
*Medicine ball put	Strength	.997	.893	.736

NORMS FOR THE GENERAL MOTOR ABILITY TEST BATTERY NUMBER TWO FOR COLLEGE STUDENTS IN GENERAL

General Motor Ability Rating	General Motor Ability Score
Excellent	185 Up
Good	163-184
Average	138-162
Poor	116-137
Inferior	115 Down

APPENDIX C

THE COMPETITIVENESS SCALE FROM THE M.M.P.I. WITH CORRECT ANSWERS

3.	I wake up fresh and rested most mornings.	T
8.	My daily life is full of things that keep me interested.	F
18.	I am very seldom troubled by constipation.	T
127.	I know who is responsible for most of my troubles.	F
129.	Often I can't understand why I have been so cross and grouchy.	T
163.	I do not tire quickly.	T
198.	I daydream very little.	T
199.	Children should be taught all the main facts of sex.	F
261.	If I were an artist I would like to draw flowers.	T
302.	I have never been in trouble because of my sex behavior.	T
328.	I find it hard to keep my mind on a task or job.	F
346.	I have a habit of counting things that are not important such as bulbs on electric signs, and so forth.	F
348.	I tend to be on my guard with people who are somewhat more friendly than I had expected.	T
376.	Policemen are usually honest.	T
399.	I am not easily angered.	T
470.	Sexual things disgust me.	F
480.	I am often afraid of the dark.	F
484.	I have one or more faults which are so big that it seems better to accept them and try to control them rather than to try to get rid of them.	T
508.	I believe my sense of smell is as good as other people's.	T
531.	People can pretty easily change me even though I thought that my mind was already made up on a subject.	F

533. I am not bothered by a great deal of belching of gas from my stomach. F

556. I am very careful about my manner of dress. F

APPENDIX D

MULTIPLE-CHOICE PICTURE TEST FORM 5 1954

Each of the pictures you will see is indicated in this booklet by a number. Underneath each number there are four descriptions for that particular picture. You are to rank the four descriptions according to your idea of what the picture expresses.

Each description can be ranked from 1 to 4 on the basis of how well you think it fits the picture, that is, tells what is happening. Read all four descriptions and decide which one you would most likely give. This one would get a rank of 1. Then decide upon the one that seems next most likely. Rank it 2. And so on. The description that you would be least likely to give should be ranked 4.

Here is an example:

A. She is listening to her favorite radio program.
B. She is annoyed because she has to work while her friends go out.
C. She feels that she cannot go to the party because no one ever asks her to dance.
D. She is looking forward to her opening night as the star of a great show.

If B is most like your own interpretation, you would rank it 1. Look at the separate answer sheet. Under the space marked Example you would write a 1 after the letter B. You would then write down the ranks for descriptions A, C and D.

Each picture will be shown for one minute. You must rank each description. Even if you have difficulty deciding what the rank should be, make the best decision you can. Remember, there are no right or wrong answers. Don't spend too much time trying to decide. Indicate your first impressions.

Now take the answer sheet. Fill in your name and other information at the top. Now turn the page. Judge the statements for Card 1 and then rank them on the separate answer sheet. Do not mark this booklet.

1. A. He is dreaming of the day when he will become a great musician.
   B. He is afraid that he will never be able to play the violin well.
   C. His violin is on the table and he is waiting for his music lesson.
   D. He is angry at his mother because she makes him practice while he'd rather be outside playing.

2. A. She feels only scorn for these people and their way of life.
   B. She is looking for a nice quiet place where she can read and get a little relaxation.
   C. She is rather sad because she doesn't fit in at school or on the farm.
   D. Her only ambition is to complete her education.

3. A. He very much wants to stay with her but is afraid of other people's contempt.
   B. He is determined to fight for what he thinks is right and will win in the end.
   C. He is disgusted with her and is trying to get away as quickly as he can.
   D. He is a patient being helped to his bed.

4. A. They are waiting for the taxi to take him to the station.
   B. He has told her that he resents her prying into his affairs.
   C. He is telling her that he must leave home because opportunities are greater in the big city.
   D. He is telling her that he has lost his job and has little hope of finding another.

5. A. The boy is determined to live up to the ideals and standards of this older man whom he greatly admires.
   B. The older man is telling about his childhood experiences.
   C. The father is telling his son that if he does not stop his wild ways, he will disown him.
   D. The boy is distressed because he feels that he has let his father down.

6. A. The little girl has been left in the care of a governess and feels that she is less loved by her parents than other children.
   B. The little girl is resentful because her mother insists upon drilling her over her homework.
   C. The little girl is listening to a story about Florence Nightingale and is thinking of the time when she might achieve so much.
   D. The little girl listens while her mother reads her stories.

7. A. He is remembering a part of the movie he has just seen.
   B. He is dreaming of becoming a skilled and famous surgeon.
   C. He realizes that the operation is doomed to failure and he turns away.
   D. He hates his cruel step-father and hopes he will. not survive the operation.

8. A. He is thinking of ways of getting back at his father who won't let his leave the cabin.
   B. He is wondering why he is so unpupular and no one comes over to play with him.
   C. He is enjoying the warmth of the sunshine.
   D. He wishes he could grow up to be like Abe Lincoln who was also born in a log cabin.

9. A. Things have not worked out for him and he is wondering if life is worth living.
   B. He is watching the plane passing overhead.
   C. He is wondering how he can revenge himself on those who have wronged him.
   D. He is thinking of great accomplishments.

10. A. He is demonstrating the way to climb a rope.
   B. He is watching his hated rival and hopes he will fall.
   C. He is in a rope climbing contest and is exerting every effort to win.
   D. Although he has tried his best, he sees that the race is lost.

11. A. She despises this man who is forcing his attentions upon her.
   B. He admires her for the success she has achieved in her career.
   C. She is sorry that she did not do more to make their marriage a happy one.
   D. They are considering whether to buy this attractive table.

12. A. He has resolved to do his best to live up to her expectations.
   B. He has failed her in spite of her high hopes.
   C. They are at a party dancing to a Viennese waltz.
   D. Despite his pretense and show of affection, he secretly despises her.

13. A. She is furious because the elevator is out of order and she must walk.
   B. She is on her way to catch a train.
   C. Although she is still looking for work in the big city, she has no real hope of success.
   D. Viewing the magnificence of the structure, she is inspired to work harder toward her career.

14. A. She cannot succeed and is going to commit suicide.
   B. She is waiting to go on stage in what will be her greatest theatrical triumph.
   C. She is trying to hide her laughter after playing a mean practical joke.
   D. She is wiping a cinder out of her eye.

15. A. She is just coming home from a walk.
   B. This maid is planning revenge on her arrogant employers.
   C. She is eager for everything to be in perfect order because her husband's boss is coming for dinner.
   D. She worries that her home is so shabby that it will make a poor impression.

16. A. She is rushing to tell her sister they have won the contest.
   B. She has told her sister that she must hurry if she wants to meet her friends.
   C. She feels only scorn for her sister and her wild ways.
   D. She feels inferior to her sister who is everything that she had hoped to be.

17.A. He feels that there is no use trying and will join this band of hobos.
B. He despises these men for their irresponsible behavior.
C. Watching the laborers, he dreams of the success that will put him far above such a life.
D. The men are resting after lunch.

18.A. The girl is watching the men and waiting for her husband to finish work.
B. Seeing her old waterfront neighborhood, she realizes how great her success has been.
C. She wishes that she had more self-confidence but fears that she will never amount to much.
D. She is furious at having been kept waiting so long.

19.A. He hates the people who have led him to this kind of life.
B. He realizes now that he will never escape from the life he has been leading.
C. He is tired and is leaving the party to get some sleep.
D. He is determined to start anew and make something of himself.

20.A. She is explaining her despair of overcoming the limitations of her handicap.
B. They are enacting a scene in a play.
C. She has finally turned in fury on the woman who has so humiliated her.
D. She is telling the other woman that despite her handicap she knows she will succeed.

21.A. He is thinking of how quiet the big city can become in the early morning.
B. He is waiting in the dark to get back at his tormentors.
C. He is sure that he will someday be one of the successful people living in this fashionable neighborhood.
D. He feels that he will never be able to make the grade in the big city.

22.A. He is being awakened from a brief rest to resume work on his invention.
B. The man is in despair because he can do nothing to help.
C. He is waking up the other person from his sleep since it is daybreak.
D. His menacing gesture reveals his deep bitterness toward the sleeping man.

23.A. The old lady is envious and resentful of the younger woman.
B. They are reminiscing about their years of happiness and success together.
C. The old lady wishes that she had been able to help the younger woman when she needed it.
D. They are watching the people pass on the street.

24.A. He has just successfully completed an extremely difficult and dangerous emergency operation.
B. He has failed to save her life although he has tried his best.
C. He is rubbing the sleep out of his eyes in an effort to keep awake.
D. He is rejecting this woman because of his disgust for her and all that she stands for.

ANSWER SHEET MULTIPLE-CHOICE PICTURE INTERPRETATION

Name_____ Sex_____ Age_____ Date_____

Example	Card 5	Card 10	Card 15	Card 20
A. 2	A_____	A_____	A_____	A_____
B 1	B_____	B_____	B_____	B_____
C 4	C_____	C_____	C_____	C_____
D 3	D_____	D_____	D_____	D_____
Card 1	**Card 6**	**Card 11**	**Card 16**	**Card 21**
A_____	A_____	A_____	A_____	A_____
B_____	B_____	B_____	B_____	B_____
C_____	C_____	C_____	C_____	C_____
D_____	D_____	D_____	D_____	D_____
Card 2	**Card 7**	**Card 12**	**Card 17**	**Card 22**
A_____	A_____	A_____	A_____	A_____
B_____	B_____	B_____	B_____	B_____
C_____	C_____	C_____	C_____	C_____
D_____	D_____	D_____	D_____	D_____
Card 3	**Card 8**	**Card 13**	**Card 18**	**Card 23**
A_____	A_____	A_____	A_____	A_____
B_____	B_____	B_____	B_____	B_____
C_____	C_____	C_____	C_____	C_____
D_____	D_____	D_____	D_____	D_____
Card 4	**Card 9**	**Card 14**	**Card 19**	**Card 24**
A_____	A_____	A_____	A_____	A_____
B_____	B_____	B_____	B_____	B_____
C_____	C_____	C_____	C_____	C_____
D_____	D_____	D_____	D_____	D_____

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