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A personality study of athletes who participate in competitive intercollegiate personal contact sports

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A PERSONALITY STUDY OF ATHLETES WHO PARTICIPATE IN COMPETITIVE INTERCOLLEGIATE PERSONAL CONTACT SPORTS

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

For many years a difference of opinion has existed regarding the personal attributes of athletes who participate in competitive intercollegiate personal contact sports. The contention that the social prestige and general publicity given college athletes have combined to produce abnormal personalities is unsubstantiated by objective data. On the other hand, a recent study tends to confirm the contention that there is a positive relationship between participation in varsity athletics in college and superior personality development.[1] There is no record, however, of an attempt to reveal, through the use of the Minnesota Multiphasic Personality Inventory, personality traits that are characteristic of athletes who participate in competitive intercollegiate personal contact sports.

I. THE PROBLEM

Statement of the problem. Are there personality traits which are predominantly characteristic of athletes

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[1] A. P. Sperling, "The Relationship Between Personality Adjustment and Achievement in Physical Education Activities," The Research Quarterly, 13:351-63, October, 1942.

who participate in competitive intercollegiate personal contact sports, and which can be revealed by the Minnesota Multiphasic Personality Inventory?

The importance of the study. The physical characteristics of size, strength, speed, skill, and endurance are some basic physical requirements of body-contact athletes. In addition to these physical requirements, the various non-physical requirements of courage, determination, cooperation, loyalty, obedience, aggressiveness, persistence, self-control, and self-sacrifice, which enable the athletes to succeed where others fail in the pursuit of these personal contact sports, tend to make these athletes a select group within the student body. An attempt was made to assess the personalities of this select group of boxers, wrestlers, and football players in an effort to determine, within the limits of the testing instrument, what the non-physical factors are and whether these factors are present in a greater or lesser degree than in the rest of the student population.

II. DEFINITIONS OF TERMS USED

Body-contact athletes. Body-contact athletes were defined as those athletes who were actively engaged in intercollegiate competition in boxing, wrestling, and

football.

Students. Throughout the report of this investigation the term "students" shall be interpreted as those male students who did not actively engage in intercollegiate competition in boxing, wrestling, and football. There was no attempt to define or select non-athletes nor to determine whether the members of this group had participated in body-contact sports or other athletic activities prior to enrolling in college.

CHAPTER II

REVIEW OF THE LITERATURE RELATED TO THIS INVESTIGATION

Although much has been written in asserting that athletics are good or bad for personality development, few previous experimental studies dealing with personality of body-contact athletes have been reported. A brief summary will be given of some writings suggesting some of the values and dangers of athletics for personality development, and a brief summary of the work of experimenters on problems very closely related to the one at hand.

Literature on the values and dangers of athletics for personality development. Griffin listed many personal values of athletics under the areas of social, ethical, emotional, and character training. He asserted that these many values are inherent in the big-muscle, team, fighting games and are developed from these games. With specific reference to the total personality he stated, "Nowhere does personality stand out and proclaim itself as in athletics. Nowhere is it more rapidly developed."[2]

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[2] F. W. W. Griffin, The Scientific Basis of Physical Education (Oxford: Oxford University Press, 1937), p. 151.

Warner declared that football has become the most important college and school sport. He stated that, because of the nature of the game, the athletes must be in perfect physical condition as well as possess brains and strategy.

> Football requires and develops courage, cooperation, loyalty, obedience, and self-sacrifice. It develops quick thinking and cool-headedness under stress; it promotes clean living and habits; it creates self confidence and the idea of service; it teaches control of temper; and most of all, it teaches that results worth-while cannot be attained without perseverance, patience and great effort.[3]

Anderson refers to an investigation to discover which college students are most likely to have satisfactory social and life positions at the age of forty-five years or after.

> In terms of later careers, students who take academic work seriously are 'most likely to succeed'; those interested in extracurricular activities which involve dramatic, literary, artistic, and social skills are next most likely; while those whose interests are largely in sports or physical activity are the least likely. Here a word of warning must be given: it may not be true that being interested primarily in academic work causes later success, but that being the kind of intelligent and disciplined person who has such interests leads to later success.[4]

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[3] Glenn Scobey Warner, Football for Coaches and Players (Palo Alto: Stanford University Press, 1927), pp. 1, 2.

[4] John E. Anderson, The Psychology of Development and Personal Adjustment (New York: Henry Holt and Company, Inc., 1949), pp. 487-88.

Cole,[5] in discussing the deleterious effects of athletic activities during adolescence, suggests that, because athletics stir the adolescent imagination profoundly, the intense interschool competition has probably done more harm than good. The author further suggests that, in addition to the physical and emotional strain of the competition, the social prestige and general publicity produce abnormal personalities in many boys who were normal until their period of athletic prominence.

The experimental studies related to this investigation may be divided into two groups. The first group includes those which have attempted to measure or define the personality traits of athletes at the college level. The second group of investigations concerns the use of the Minnesota Multiphasic Personality Inventory.

Literature on personality studies of various groups. Sperling[6] attempted to determine the relationship between personality adjustment and achievement in physical education activities among male college students. He chose

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[5] Luella Cole, Psychology of Adolescence (New York: Rinehart and Company, Inc., 1942), p. 274.

[6] A. P. Sperling, "The Relationship Between Personality Adjustment and Achievement in Physical Education Activities," The Research Quarterly, 13:351-63, October, 1942.

five measuring instruments and tested three groups of students, varsity athletes, intramural athletes, and non-athletes. His treatment of the data included a comparison between body-contact sports teams and non-body-contact sports teams. His body-contact group consisted of basketball, football, and lacrosse players and boxers and wrestlers. He found statistically reliable differences in the personality patterns of the varsity and intramural groups as distinguished from those of non-athlete groups. No significant personality trait differences were found between the varsity and intramural groups. In the personality adjustment scores, ascendency and extroversion, the varsity group proved to be reliably superior to non-athletes. In attitude he found the non-athletes to be more liberal-minded than the two athlete groups, but the difference was not significant. In interests and motivational values, he found the varsity and intramural groups to be more significantly motivated by a desire for power and to a lesser extent by social love of people. The non-athlete group was indicated to be more aesthetic and theoretically minded. The author concluded that his findings tend to confirm the contentions that there is a positive relationship between participation in physical education activities and superior personality development.

Flanagan,[7] in a study of college men enrolled in the physical education classes of fencing, basketball, boxing, swimming, volley ball, and badminton, found group differences, some of statistical significance, with respect to the four personality traits of Ascendence-Submission, Masculinity-Femininity, Extroversion-Introversion, and Emotional Stability-Emotional Instability. The author concluded that groups who spontaneously select one physical activity course demonstrate that personality is a factor in making the selection.

A personality schedule including items from the Thurstone neurotic inventory and ascendence-submission items was administered by Henry[8] to student pilots, track squad athletes, physical education majors, and students enrolled in weight lifting. In the extreme group the physical education majors were found to be significantly lower than the weight lifters in total scores and in ascendence-submission and Thurstone parts separately. Lower scores indicated that the physical education majors were less neurotic and more ascendant. They were also

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[7] Lance Flanagan, "A Study of Some Personality Traits of Different Physical Activity Groups," The Research Quarterly, 22:312-23, October, 1951.

[8] F. M. Henry, "Personality Differences in Athletes, Physical Education and Aviation Students," Psychological Bulletin, 38:8, 745, October, 1941.

significantly lower in trait constellations concerning social introversion, hypochondriac and neurasthenic syndromes, inferiority, hypersensitivity, and possibly in self-consciousness, and self-insufficiency, but not in cycloid tendency. In the intermediate group the athletes and aviators had nearly identical scores. They were significantly more neurasthenic than the physical education majors and less introverted and hypochondriac than the weight lifters.

Thune[9] administered a personality inventory to one hundred Y. M. C. A. male weight lifters and to one hundred other Y. M. C. A. male athletes in an effort to determine group differences in attitudes and dispositions of personality. An analysis of the data led him to conclude that training with weights probably appeals to a group that differed with respect to interests, attitudes, and personality from the rest of the active Y. M. C. A. membership, and that his differentiating items indicated that the members of the weight lifting group felt more strongly than the controls that their health had improved, that basically they were shy, that they lacked

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[9] John B. Thune, "A Study of Weightlifters Using the Questionnaire Technique," Research Quarterly, 20:296-306, October, 1949.

self-confidence, and that they did not obtain satisfaction in the more traditional physical activities. They wanted to be strong and dominant, emulating other strong men.

Literature on the use of the Minnesota Multiphasic Personality Inventory. A number of studies have been made regarding the comparison of personality traits through the use of the Minnesota Multiphasic Personality Inventory. Lough[10] used the Minnesota Multiphasic Personality Inventory to determine whether there were personality differences in students enrolled in the general curriculum and those enrolled in the music teaching curriculum. She compared the per cent of students in each group who scored above the mean on each of the scales of the test. Only slight differences appeared. The teaching group showed a slight tendency toward hypomania.

A study of the relationship between personality traits and occupations was made by Verniaud[11] who compared three contrasting non-professional occupations. The occupations were clerical workers, department store saleswomen and optical workers. She administered the Minnesota

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10 Orpha M. Lough, "Teachers College Students and the Minnesota Multiphasic Personality Inventory," Journal of Applied Psychology, 30:241-46, June, 1946.

11 W. M. Verniaud, "Occupational Differences of the Minnesota Multiphasic Personality Inventory," Journal of Applied Psychology, 30:604-13, December, 1946.

Multiphasic Personality Inventory to ninety-seven workers engaged in these occupations and a clinical study was made of each individual scoring above the mean on any scale. This clinical evidence indicated a relationship between type of work, type of worker, and the scores on the personality scales.

Harmon and Wiener[12] reported using the Minnesota Multiphasic Personality Inventory as part of the vocational advisement program in a Veterans' Administration, Rehabilitation and Education Division. A study of the profiles indicated limitations in the type of work a man should undertake. Altus[13] administered the group form of the Minnesota Multiphasic Personality Inventory to two equated groups of elementary psychology students. He designated the groups as achievers and non-achievers based upon the degree to which they worked above or below the levels indicated by intelligence tests. He found that the trend on eight of the nine clinical scales was for slightly greater maladjustment on the part of the non-achieving

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[12] L. R. Harmon and D. N. Wiener, "Use of the Minnesota Multiphasic Personality Inventory," Journal of Applied Psychology, 29:132-41, April, 1945.

[13] William D. Altus, "A College Achiever and Non-Achiever Scale for the Minnesota Multiphasic Personality Inventory," Journal of Applied Psychology, 32:385-97, August, 1948.

students.

Spiaggia[14] compared scores of fifty male art students with fifty adult males on the Minnesota Multiphasic Personality Inventory and found that art students scored significantly higher than the controls on seven of the nine scales.

Although there is no record of the Minnesota Multiphasic Personality Inventory being used to compare the personality traits of body-contact athletes and students, a review of the literature has revealed that the test has been widely used in comparing other normal groups for various reasons.

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14 M. Spiaggia, "An Investigation of the Personality Traits of Art Students," Educational and Psychological Measurement, 10:285-91, Summer, 1950.

CHAPTER III

ORGANIZATION OF INVESTIGATION

I. THE INSTRUMENT USED

The Minnesota Multiphasic Personality Inventory. The Minnesota Multiphasic Personality Inventory was chosen as the personality measuring instrument to be used in this study. This choice was made for three reasons. First, it yields quantitative scores on a number of personality traits. These traits are hypochondriasis, depression, hysteria, psychopathic deviation, masculinity or femininity of interest pattern, paranoia, psychasthenis, schizophrenia, and hypomania. These terms are usually descriptive of clinically abnormal states. All people at various times and in varying intensity possess these traits, and it is only when they get out of control that serious difficulty ensues. In comparing the personality traits of body-contact athletes with a random sampling of students it will be determined if the body-contact athletes possess certain traits or combinations of traits to a greater or lesser extent than the students.

Another reason for choosing this test in this investigation was the fact that numerous experimental scales other than the original nine have been developed,

providing additional traits with which to compare the two groups.

The third reason for choosing this test was the fact that part of the normal population on which it was standardized was a college student population.

Description of the Minnesota Multiphasic Personality Inventory. The Minnesota Multiphasic Personality Inventory is a technique developed at the University of Minnesota and published in 1943. The test is copyrighted in an individual form and in a pencil and paper group form. The individual form consists of 550 statements, each printed in simple language on a separate card. These statements cover a wide range of subjects, from the physical condition to the morale and social attitudes of the individual being tested. The group form, a booklet, presents 566 statements; sixteen statements have been duplicated to obtain a more economical method of scoring the answer sheets by machine.

The subject is asked to sort all the cards, if using the individual form, into three categories indicated by guide cards, "true," "false," and "cannot say." If the subject believes the statement to be true as applying to him, he places it behind the "true" guide card. If he believes it to be false as applying to him, he places it behind the "false" guide card. If he is uncertain about

the statement he classifies it behind the "cannot say" guide. The statements as applying to him are similarly indicated by the subject on the group form simply by marking the answer sheet in the appropriate space with a pencil or by leaving it blank if he classifies it as "cannot say."

Description of the scales. At the present time the Minnesota Multiphasic Personality Inventory yields scores on four validating scales and the nine personality scales. The four validating scales on which scores can be produced are a question (?) scale, lie (L) scale, validating test attitude, or (F) scale, and a correction, or (K) scale. The personality scales are those for hypochondriasis, depression, hysteria, psychopathic deviate, masculinity-femininity of interests, paranoia, psychasthenia, schizophrenia, and hypomania.

The scales are based upon clinical cases classified according to conventional psychiatric nomenclature. The question score (?) is a validating score consisting simply of the total number of items put in the "cannot say" category. The size of this score affects the significance of the other scores. The lie score (L) is also a validating score that affords a measure of the degree to which the subject may be attempting to falsify his scores by always

choosing the response that places him in the most acceptable light socially. The validity score (F) serves as a check on the validity of the whole record. If the F score is high, the other scales are likely to be invalid either because the subject was careless, over-conscientious or unable to comprehend the items, or because extensive scoring or recording errors were made. The K score (K) is used essentially as a correction factor to sharpen the discriminatory power of the clinical variables measured.

The Hypochondriasis Scale (Hs) is a measure of amount of abnormal concern over bodily functions. The Depression Scale (D) measures the extent of the clinically recognized symptom complex, depression. The Hysteria Scale (Hy) measures the degree to which the subject is like patients who have developed conversion-type hysteria symptoms. The Psychopathic Deviate Scale (Pd) measures the similarity of the subject to a group of persons whose main difficulty lies in their absence of deep emotional response, their inability to profit from experience, and their disregard for social mores.

The Interest Scale (Mf) measures the tendency toward masculinity or femininity of interest pattern. A high score indicates an interest pattern corresponding to that of the opposite sex. The Paranoia Scale (Pa) was

derived by contrasting normal persons with a group of clinic patients who were characterized by suspiciousness, oversensitivity, and delusions of persecution.

The Psychasthenia Scale (Pt) measures the similarity of the subject to psychiatric patients who are troubled by phobias and compulsive behavior. The Schizophrenia Scale (Sc) measures the similarity of the subject's responses to those patients who are characterized by bizarre and unusual thoughts and behavior. The Hypomania Scale (Ma) measures the personality factor characteristic of persons with marked overactivity in thought and action.

Among the other scales that have been developed for use with the Minnesota Multiphasic Personality Inventory but which are not included with the test material when purchased, five were chosen to be included in this study. The Social I.E. Scale (Si) aims to measure the tendency to withdraw from social contact with others. The Dominance Scale (Do) aims to measure personal dominance in face-to-face situation. The Prejudice Scale (Pr) aims to measure psychological factors associated with prejudices against minority groups, especially anti-Semitism. The Responsibility Scale (Re) aims to measure internalization of social and moral responsibility. The Socio-economic Scale (St) aims to measure certain inner psychological trends usually

found associated with a person's socio-economic class.

II. THE SUBJECTS USED

The subjects used in this investigation were fifty-two male students from the College of the Pacific who were enrolled during the 1950-1951 school term, and ten male students who were enrolled at San Jose State College during the 1952-1953 school term. The body-contact athlete group consisted of twenty-seven varsity football players from the College of the Pacific and seven boxers and three wrestlers from San Jose State College. The student group, or students who did not participate in body-contact sports, consisted of twenty-five male students who enrolled in the mental hygiene course at the College of the Pacific.

The criterion for the selection of the body-contact athletes was simply the degree of success that these athletes experienced in their prospective sports. In the group of football players only those who had succeeded in making the varsity squad were selected. Similarly, only those boxers and wrestlers were selected who, through the process of elimination, succeeded in winning the opportunity to participate in one or more intercollegiate boxing or wrestling matches. The number of years in college and the number of years of participation in college athletics were

not considered in the selection of this group.

An attempt was made to use a group of male students which would be a random sampling of the student population at the college. Since the mental hygiene course at the College of the Pacific enrolls students who are working for teaching credentials and degrees in psychology and health, physical education, and recreation, the male students enrolled in this course at the time this investigation was undertaken were considered to be a random sampling of the school population and were used as the student group. The range in ages for this group was from twenty years to thirty-two, and the range for the body-contact athlete group was from twenty years to twenty-eight.

CHAPTER IV

THE INVESTIGATION AND STATISTICAL ANALYSIS

In this chapter the administering and scoring of the tests and the recording of the results are described. The method of computing group scores is explained, and tables and graphs are presented to show the significance and relationship of these group scores.

I. THE INVESTIGATION

Each subject of the group of body-contact athletes was contacted personally and presented the group form of the Minnesota Multiphasic Personality Inventory. The subjects were asked to follow the instructions on the booklet carefully and to complete the test in private. On account of the pressure of other activities, some subjects required several days in which to complete the inventory. The test results were treated confidentially.

The group form answer sheets of the student group were made available for this investigation by the psychology department. The students had been administered the group form of the Minnesota Multiphasic Personality Inventory as a function of the mental hygiene course, filling out the answer sheets in private outside of class.

The group form answer sheets of two football players and one student were not available for scoring on the various experimental scales. Consequently, the number of body-contact athletes on the experimental scales is thirty-five, and the number of students is twenty-four.

The answer sheets of both groups were carefully scored and recorded. In the cases of extreme scores on either the validity scales or the clinical scales, the scoring and recording were rechecked for possible errors.

Raw scores were obtained from the answer sheets and properly recorded. The appropriate amount of the raw score of K was added to the raw scores of Hs, Pd, Pt, Sc, and Ma as recommended in the manual. The raw scores were then converted to T scores from the table of T scores provided in the manual. The T scores were then plotted on profile charts, thus providing a personality profile for each subject.

In order to facilitate comparisons between the body-contact group and the student group, group profiles were developed by computing the mean raw score of each group for each scale. These mean raw scores were converted to T scores and plotted on a profile form. Figure 1, the profile form, on page 22, graphically illustrates the relationship of the two groups in terms of group personality traits.

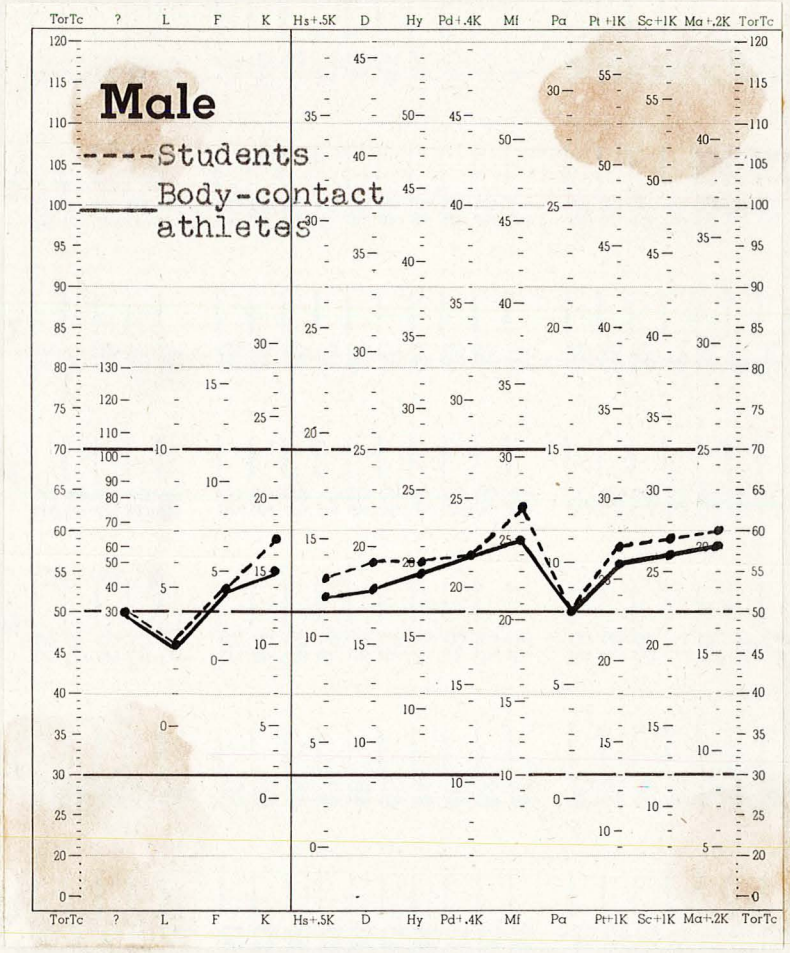

FIGURE 1

GROUP PROFILES OF BODY-CONTACT ATHLETES AND STUDENTS ON THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

II. STATISTICAL ANALYSIS

In determining the significance of the difference between the mean scores of the body-contact athletes and the students, the standard deviation and the standard error of the mean were computed for each group. From these the standard error of the difference between the two means and the critical ratio were computed for each of the diagnostic and special scales. Table I shows the results of these computations.

It can be seen from Table I that the difference is significant at the 1 per cent level for the Hs and Do scales and at the 5 per cent level for the Re scale. The difference is significant at the 10 per cent level for the Mf scale.

Since none of the individual tests were discarded for extremely high or low scores on the validity scales, an effort was made to lend more credence to these results by using the F minus K dissimulation index.[15] Gough has suggested that raw score F minus K should be used as a main indicator of test-taking distortion. On the basis of his

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[15] Harrison G. Gough, "The F Minus K Dissimulation Index for the MMPI," Journal of Consulting Psychology, 14:408-13, October, 1950.

TABLE I

SIGNIFICANCE OF DIFFERENCE BETWEEN THE MEAN SCORES OF BODY-CONTACT ATHLETES AND STUDENTS ON THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

Scales	Mean Raw Scores		Standard Deviations		Standard Error of the Mean		Standard Error of the Difference	Critical Ratio
	Athletes	Students	Athletes	Students	Athletes	Students		
Hs	11.92	13.28	3.53	2.65	.588	.540	.250	5.44**
D	17.76	18.72	5.19	4.60	.865	.938	1.28	.750
Hy	19.35	20.32	3.75	4.23	.625	.863	1.07	.906
Pd	21.81	21.56	3.75	4.17	.625	.851	1.00	.250
Mf	24.51	26.88	4.17	5.80	.695	1.18	1.37	1.73
Pa	8.45	8.28	2.22	1.71	.370	.348	.161	1.06
Pt	25.83	27.16	4.71	5.53	.785	1.13	1.37	.970
Sc	25.57	26.80	3.44	6.16	.573	1.26	1.38	.891
Ma	20.43	21.20	3.54	4.05	.593	.826	1.01	.762
Si	22.69	20.96	9.36	8.68	1.58	1.81	2.40	1.14
Re	20.77	21.38	2.45	3.89	.413	.810	.287	2.12*
Do	16.11	17.62	2.81	3.29	.474	.685	.263	5.74**
St	23.09	24.16	3.88	3.67	.655	.765	1.01	1.06
Pr	9.51	9.20	3.02	3.92	.510	.817	.304	1.02

* Indicates significance at the 5 per cent level.

** Indicates significance at the 1 per cent level.

idea that differences of twelve and over are suggestive of simulation and malingering, twelve was used as the cutting score and all tests scoring twelve or over on the F minus K index were discarded. This screening device reduced the number of body-contact athletes to twenty-one on the diagnostic scales and twenty on the special scales. The number of students was reduced to nine on the diagnostic scales and eight on the special scales. Table II indicates that the difference between the mean scores of Hs is significant at the 5 per cent level after screening.

On account of the small number of subjects used in this investigation, other group comparisons were made without further use of the F minus K dissimulation index.

The body-contact athlete group was subdivided into group body-contact athletes and individual body-contact athletes. The football players became the group body-contact group, and the boxers and wrestlers became the individual body-contact group. The differences of the scores were obtained and their significance determined. Table III, page 27, indicates significant differences on the Pd and Sc scales at the 5 per cent level.

With the individual body-contact group consisting of ten cases, and the student group of twenty-five, Table IV, page 28, indicates that the differences are slight and are not significant at the 5 per cent level. The

TABLE II

SIGNIFICANCE OF DIFFERENCE BETWEEN THE MEAN SCORES OF BODY-CONTACT ATHLETES AND STUDENTS ON THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY WHEN USING THE DISSIMULATION INDEX OF F-K AND CUTTING AT TWELVE

Scales	Mean Raw Scores		Standard Deviations		Standard Error of the Mean		Standard Error of the Difference	Critical Ratio
	Athletes	Students	Athletes	Students	Athletes	Students		
Hs	10.57	13.33	2.57	2.55	.577	.901	1.07	2.58*
D	18.04	19.22	3.30	5.29	.738	1.87	2.02	.584
Hy	18.95	20.55	3.79	3.59	.847	1.25	1.53	1.04
Pd	21.10	20.67	3.76	3.97	.841	1.40	1.63	.263
Mf	26.38	26.55	3.77	4.22	.843	1.49	1.71	.099
Pa	8.52	8.33	2.18	1.95	.487	.689	.267	.711
Pt	25.57	27.78	4.97	6.11	1.11	2.16	2.43	.909
Sc	25.29	27.22	3.78	6.34	.845	2.25	2.37	.807
Ma	20.67	21.22	4.10	3.27	.917	1.16	1.48	.371
Si	25.60	21.25	8.88	11.20	2.04	4.23	4.69	.927
Re	19.70	18.63	2.83	3.05	.649	1.15	1.32	.810
Do	16.05	16.50	3.10	1.32	.711	.498	.274	1.64
St	22.80	23.00	3.99	4.44	.915	1.68	1.91	.104
Pr	10.70	11.88	2.61	3.53	.598	1.33	1.45	.813

* Indicates significance at the 5 per cent level.

TABLE III

SIGNIFICANCE OF DIFFERENCE BETWEEN THE MEAN SCORES OF GROUP BODY-CONTACT ATHLETES AND INDIVIDUAL BODY-CONTACT ATHLETES

Scales	Mean Raw Scores		Standard Deviations		Standard Error of the Mean		Standard Error of the Difference	Critical Ratio
	Group	Indiv.	Group	Indiv.	Group	Indiv.		
Hs	11.74	12.40	3.68	3.10	.721	1.03	1.26	.523
D	17.63	18.10	5.40	4.16	1.06	1.54	1.87	.251
Hy	19.22	19.70	3.71	3.84	.727	1.28	7.38	.065
Pd	21.00	24.00	3.78	2.65	.741	.883	1.15	2.61*
Mf	24.59	24.30	4.60	2.61	.901	.870	1.25	.232
Pa	8.56	8.20	2.15	2.23	.421	.743	2.70	.133
Pt	26.15	25.00	2.26	3.09	.443	1.03	1.12	1.03
Sc	24.89	27.40	3.32	3.10	.650	1.03	1.22	2.06*
Ma	20.63	20.40	1.95	3.90	.382	1.30	1.36	.169
Si	24.72	17.69	8.89	8.55	1.81	2.85	3.58	1.99
Re	20.56	21.10	2.83	2.98	.577	.993	1.15	.469
Do	15.76	17.00	2.79	2.53	.569	.843	1.01	1.23
St	22.80	23.80	4.17	3.06	.851	1.02	1.33	.751
Pr	9.96	8.40	5.40	2.06	1.10	.686	1.29	.928

* Indicates significance at the 5 per cent level.

TABLE IV

SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEAN SCORES OF INDIVIDUAL BODY-CONTACT ATHLETES AND STUDENTS ON THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

Scales	Mean Raw Scores		Standard Deviations		Standard Error of the Mean		Standard Error of the Difference	Critical Ratio
	Indiv.	Students	Indiv.	Students	Indiv.	Students		
Hs	12.40	13.28	3.10	2.65	1.03	.540	1.16	.758
D	18.10	18.72	4.61	4.60	1.54	.938	1.80	.344
Hy	17.90	20.32	3.84	4.23	1.28	.863	1.54	.435
Pd	24.00	21.56	2.65	4.17	.883	.851	1.22	2.00
Mf	24.30	26.88	2.61	5.80	.870	1.18	1.46	1.77
Pa	8.20	8.28	2.23	1.71	.743	.348	.259	.308
Pt	25.00	27.16	3.09	5.53	1.03	1.13	1.53	1.42
Sc	27.40	26.80	3.10	6.16	1.03	1.26	1.62	.370
Ma	20.40	21.20	3.90	4.05	1.30	.826	1.54	.519
Si	17.60	20.96	8.55	8.68	2.85	1.81	3.37	.997
Re	21.10	21.38	2.98	3.89	.993	.810	1.28	.218
Do	17.00	17.62	2.53	3.29	.843	.685	1.08	.574
St	23.80	24.16	3.06	3.67	1.02	.765	1.27	.283
Pr	8.40	9.20	2.06	3.92	.686	.817	1.06	.754

Pd and Mf scales are significant at the 10 per cent level only.

The differences between the scores of the group body-contact athletes and the students are shown to be significant at the 1 per cent level on the Hs and Do scales and at the 1 per cent level on the Re scale on Table V.

TABLE V

SIGNIFICANCE OF THE DIFFERENCE BETWEEN THE MEAN SCORES OF GROUP BODY-CONTACT ATHLETES AND STUDENTS

Scales	Mean Raw Scores		Standard Deviations		Standard Error of the mean		Standard Error of the Difference	Critical Ratio
	Group	Students	Group	Students	Group	Students		
Hs	11.74	13.28	3.68	2.65	.721	.540	.285	5.40**
D	17.63	18.72	5.40	4.60	1.06	.938	1.41	.773
Hy	19.22	20.32	3.71	4.23	.727	.863	1.13	.973
Pd	21.00	21.56	3.78	4.17	.741	.851	1.13	.495
Mf	24.59	26.88	4.60	5.80	.901	1.18	1.48	1.55
Pa	8.56	8.28	2.15	1.71	.421	.348	.172	1.63
Pt	26.15	27.16	2.26	5.53	.443	1.13	1.21	.834
Sc	24.89	26.80	3.32	6.16	.650	1.26	1.42	1.35
Ma	20.63	21.20	1.95	4.05	.382	.826	.287	1.99
Si	24.70	20.96	8.89	8.68	1.81	1.81	2.56	1.46
Re	20.56	21.38	2.83	3.89	.577	.810	.314	2.61*
Do	15.76	17.62	2.79	3.29	.569	.685	.281	6.62**
St	22.80	24.16	4.17	3.67	.851	.765	1.14	1.19
Pr	9.96	9.20	5.40	3.92	1.10	.817	1.37	.554

* Indicates significance at the 5 per cent level.

** Indicates significance at the 1 per cent level.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this chapter is to bring together in a concise way the results of this investigation. The implication of these results will also be discussed.

I. SUMMARY

This investigation concerns itself with the comparison of body-contact athletes and students at the college level. The group form of the Minnesota Multiphasic Personality Inventory was administered to a group of body-contact athletes and a group of students in an effort to determine if there are personality traits which are predominantly characteristic of athletes who participate in competitive intercollegiate personal contact sports. The group of body-contact athletes consisted of twenty-seven varsity football players, seven boxers, and three wrestlers. The group of students consisted of students who were enrolled in a mental hygiene course and who were not participants in body-contact sports.

Group profiles were developed by computing the mean raw score of each group for each personality scale. The standard deviation, the standard error of the mean, the standard error of the difference, and the critical ratio

were computed to determine the significance of the difference between the mean scores of the groups.

Similar comparisons were made between the group body-contact athletes, football players, and individual body-contact athletes, boxers, and wrestlers. Statistical comparisons were made between the body-contact athletes and the students; group body-contact athletes and individual body-contact athletes; individual body-contact athletes and students; and group body-contact athletes and students.

The students scored significantly higher than the body-contact athletes on the Hs, Re, and Do scales. The individual body-contact athletes scored significantly higher than the group body-contact athletes on the Pd and Sc scales. The students scored significantly higher than the group body-contact athletes on the Hs, Re, and Do scales. The difference between the mean scores of the individual body-contact athletes and students was not significant.

By using the F minus K dissimulation index the students scored significantly higher than the body-contact athletes on the Hs scale only.

II. CONCLUSIONS

This investigation has revealed that, although the mean scores of both groups on all of the clinical scales were within normal limits, a difference in personality traits existed between the body-contact athletes and the students. These differences were not made apparent by the group profile graph but were found to exist by statistical treatment of the group mean scores. Although these differences are slight and may only be demonstrated statistically, they nevertheless are real and lend themselves to interpretation.

In interpreting the statistics of this investigation, it is particularly significant that by using the F minus K dissimulation index the Hs scale is the only scale where there is a significant difference between the mean scores of the body-contact athletes and the students. When considering the purported increased validity achieved through the use of this index, it may be concluded that a low score on the Hs scale is a predominant characteristic of body-contact athletes. From the manual this may be interpreted to mean that a predominant characteristic of body-contact athletes, as compared to the students, is their lack of worry over their health, the fact that they do not exaggerate their physical

complaints and do not use physical complaints in seeking sympathy.

In considering the other scales where significant differences were found to exist, interpretations may similarly be made. The fact that the students scored significantly higher on two of the experimental scales, Re and Do, suggests that the students have more moral and social responsibility and are more dominant than the body-contact athletes.

The group of boxers and wrestlers scored significantly higher than the group of football players on two of the clinical scales, Pd and Sc, which suggests that the boxers and wrestlers are less likely to develop strong emotional ties, to profit from experience, and to have regard for social mores, than are the football players. The boxers and wrestlers are more prone than are football players to have bizarre thoughts or behavior.

The personalities of the students were found to be more similar to the personalities of the boxers and wrestlers than to the football players.

The students scored significantly higher than the football players on the Hs, Re, and Do scales. This suggests that the football players are less inclined to worry over their health, exaggerate their physical

complaints or use physical complaints in seeking sympathy and that the students have more social and moral responsibility and are more dominant.

Although the Hs scale statistically lends itself to interpretation and characterizes the body-contact athletes to a small degree, neither the Hs scale nor the complete test can be used to differentiate body-contact athletes from students. The percentage frequency difference of responses between the two groups on each item may show, however, that some items could be used in the construction of a special scale which possibly could be used to distinguish body-contact athletes from students.

As new instruments for measuring personality are developed it is necessary that they be used and evaluated. A worthy project for which the present study might serve as a prototype is the use of the California Psychological Inventory, or other new personality tests, in comparing body-contact athletes with other groups. Other predominant characteristics of body-contact athletes may be disclosed, to provide information which may be of help in eventually developing a scale which will identify body-contact athletes.

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