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Effect of hatha yoga and aerobic training on Personality of College students

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Abstract

The veracity of modern medical science is based on controlled clinical trials. Personality is a product of the interaction of a biological organism with the social environment. It is the way an individual adjusts with his external environment, and responding to the environment. The purpose of the study was to investigate the effect of Hatha yoga, Aerobic training and combination of hatha yoga and aerobic training on personality of college level students.

Method: Subjects were divided into four equal groups on random basis (Groups A, B, C & D) consisting of 25 subjects in each group. Three out of the four groups were given experimental treatments i.e. aerobic training (Group- A), Hatha yoga (Group- B) and combination of hatha yoga and aerobic training (Group- C) and while the remaining one group (Group- D) was designated as control group.

Results: Out of 16 personality factors significant differences were noticed in personality Factor- A, C, E, O and Factor-Q₃ only.

Conclusion: The hatha yoga training is found to be more effective in changing the personality Factor-A- (Reserved v/s Outgoing), Factor-C (Affected by feeling v/s Emotionally stable), Factor- E- (Humble v/s assertive), Factor-O (Placid v/s apprehensive) and Factor-Q₃ (Undisciplined self-conflict v/s High self-concept control) towards the higher range of the personality profiles in comparison to the effect of aerobic training and combination of hatha yoga and aerobic training on aforesaid personality factors.

Keywords: hatha yoga, aerobic training, personality, college students.

1. Introduction

Personality refers to a peculiar blend of characteristics that makes a person unique. It is not a mere collection of various traits, but a particular organisation of the same. That is way the integration of these traits, or personality, is never the same in any two individuals. Personality is unique. Personality is in fact a product of the interaction of a biological organism with the social environment. Therefore, the key to personality development is socialization where biology and culture merge.

Indians had adopted Yoga as a life-style since the beginning of civilization. Mind is the king of the senses. One who has conquered his mind, senses, passions, through and reason, is a king among men. That man is fit for hatha yoga, the royal union with the universal spirit. One who has conquered his mind has complete mastery of his self. The scientific nature of the Yogic practice was first revealed in 1924, when Swami Kavalayanandaji started his scientific research in the field of Yoga. The origins of hatha yoga have been traced back to the eleventh century A.D. The Sanskrit word ha means "sun" and the means "moon" and thus hatha, or literally sun-moon yoga, strives to balance opposing parts of the physical body, the front and back, left and right, top and bottom. In addition to breathing, hatha yoga utilizes asanas, or physical postures, to bring about flexibility, balance and strength in the body. Yogis claim that although hatha yoga can make the body as strong and fit as any exercise program, its real benefits come out because it is a system of maintenance and balance for the whole body.

Each of the systems in our body (cardiovascular, neuro-muscular, respiratory and other) is influenced by exercise. Each system is affected in a manner specific to the kind of exercise performed. Aerobic exercise emphasizes improvement of the metabolic, cardiovascular, respiratory, and muscular systems.

Aerobic fitness is a complex component of physical fitness. It involves the interaction of numerous physiological processes in the cardiovascular, respiratory, and muscular system. Thus, the combined cardiovascular and respiratory system is the oxygen supply mechanism for

the muscles. If we are committed aerobic exercise in combination with a sensible diet it can help to provide an overall sense of well-being and it can even help to prevent chronic illness, disability and premature death. There are also many benefits of aerobic training like performance enhancement, body composition changes, body heat transfer system improvement, personality development, avoid stress and anxiety etc. Thereby a humble attempt was taken in this study to investigate the effect of Hatha yoga, Aerobic training and further more the combination of hatha yoga and aerobic training on personality of college level students.

2. Materials & Method

2.1. Selection of variables

One hundred male students of A.K.P.C. Mahavidyalaya, Bengai, Dist- Hooghly, West Bengal, were randomly selected as the subjects for this study with an age range of 18 to 19 years.

The subjects were participated voluntarily in the programme after examined by the physician to ascertain that they were free from any type of medical problems and were fit enough to go through Aerobic training, Hatha yoga training and combination of Aerobic and Hatha yoga training programmes for ten weeks. Subjects were divided into four equal groups on random basis (Groups A, B, C & D) consisting of 25 subjects in each group. Three out of the four groups were given experimental treatments i.e. Aerobic training (Group- A), Hatha yoga (Group- B) and combination of hatha yoga and aerobic training (Group-C) and While the remaining one group (Group- D) was designated as control group, which were not given any experimental treatment. The Personality scores were obtained by using Cattell's 16 P.F. Questionnaire test from the subjects of all the groups.

2.2. Administration of Tests

The Cattell's 16 Personality Factors Questionnaire (Form-A) developed by Raymond. B. Cattell and Herber. W. Eber was supplied by psycho centre, New Delhi that was employed to evaluate personality characteristics of the subjects. The 16 P.F. Questionnaire was selected because it is an objective test and employs simple means based upon research in psychology. It measures the personality characteristics of an individual in an extensive manner and is economical in time. The test was administered strictly in accordance with the prescribed procedures. All the respondents were called into a class room when they were not busy and had enough time to answer the questionnaire. The scholar motivated the respondents by promising to send relevant information and conclusions of study to each of them. It was assured to them that their responses would be kept confidential and would not be used for any other purpose than the present research study, and therefore they could give honest responses without any sense of fear or apprehension. After that, one questionnaire along with an answer sheet was given to the respondents by promising to send relevant information and conclusion of study to each of them. It was assured to them that their responses would be kept confidential and would not be used for any other purpose than the present research study, and therefore they could give honest responses without any sense of fear or apprehension. After that, one questionnaire along

with an answer sheet was given to each subject. Following the instructions they answered all the 187 statements.

3. Scoring of the Questionnaire

3.1. Sixteen Personality trait factors: The score of completed answer-sheets was done according to the method described in the manual. Two card board stands scoring keys were used, one covered factors (traits) A (Reserved v/s outgoing), C (Affected by feeling v/s Emotionally stable), F (Desurgency v/s Surgency), H (Shy v/s Venturesome), L (Trusting v/s Suspicious), N (Forth right v/s Shrewd), Q1 (Conservative v/s Experimenting) and Q3 (Undisciplined self-conflict v/s High self-concept control) and other factors B (Less Intelligent v/s More Intelligent), E (Humble v/s Aggressive), G (Weaker super ego strength v/s Stronger super ego strength), I (Tough minded v/s Tender minded), M (Practical v/s Imaginative), O (Placid v/s Apprehensive), Q2 (Group dependent v/s Self-sufficient) and Q4 (Low ergic tension v/s High ergic tension). Before using the scoring stencils each answer sheet was checked to ensure that there were no odd, unscramble responses. After checking stencil it was made to fit over the answer sheet and the scores visible through holes were counted as indicated by numbers printed adjacent to the hole. These scores were summed up and total score was entered in the space indicated by the arrow on the stencil for each factor. The raw score were converted into 'stens' with the help of norms in the test -manual.

3.2. Method to Plot profiles

The Red, Black, Green and Blue colors were used to represent group -A (Aerobic training), group- B (hatha yoga training), group- C (combination of hatha yoga and aerobic training) and group- D (control group) respectively. While circle symbol (o), star symbol (*) and star around the circle symbol (⊙) were used to represents the pre, post and adjusted post-test phases respectively.

3.3. Administration of training programme

A ten weeks aerobic training, hatha yoga training and combination Hatha yoga and aerobic training programme for three days in a week i.e., on Monday, Wednesday & Friday were conducted. The training programme was administered in the morning session of the day. The control group was continued their regular programme as usual.

3.4. Statistical Procedure

In order to investigate the comparative effect of each training method i.e Aerobic training, Hatha yoga training, and combination of Hatha yoga and aerobic training, on personality among three experimental groups and one control group of the college male students undertaken on this study, the analysis of co-variance statistics was applied.

In case of existence of significant, the post-hoc test was applied in order to investigate the existence significant differences if any, among three experimental groups namely aerobic training, hatha yoga training and combination of Hatha yoga and aerobic training and one control group of college male students.

The significant level was set at 0.05 level of confidence.

4. Results

The results were given in the following tables & figures.

Table 1: Analysis of Co-variance of personality factors among the Experimental and Control groups.

Personality Factors	Group A			Group B			Group C			Control			F-value
	Pre	Post	Ad. post	Pre	Post	Ad. post	Pre	Post	Ad. post	Pre	Post	Ad. post	
A-Reserved v/s Outgoing	5.88	6.80	6.82	5.96	6.2	6.17	5.92	6.72	6.72	5.84	5.72	5.77	4.98*
C- Affected by feeling v/s Emotionally stable	3.44	4.08	4.16	3.72	5.04	4.95	3.4	4.76	4.86	3.92	3.96	3.75	4.59*
E- Humble v/s assertive	4.92	5.76	5.71	4.76	5.52	5.56	5.16	5.80	5.61	4.96	5.00	4.92	2.72*
O- Placid v/s apprehensive	6.88	7.24	7.19	6.56	6.60	6.64	6.92	6.72	6.48	6.76	6.72	6.61	2.77*
Q3- Undisciplined self-conflict v/s High self-concept control	4.52	4.40	4.46	4.76	5.20	5.13	4.56	5.32	5.13	4.64	4.64	4.64	2.85*

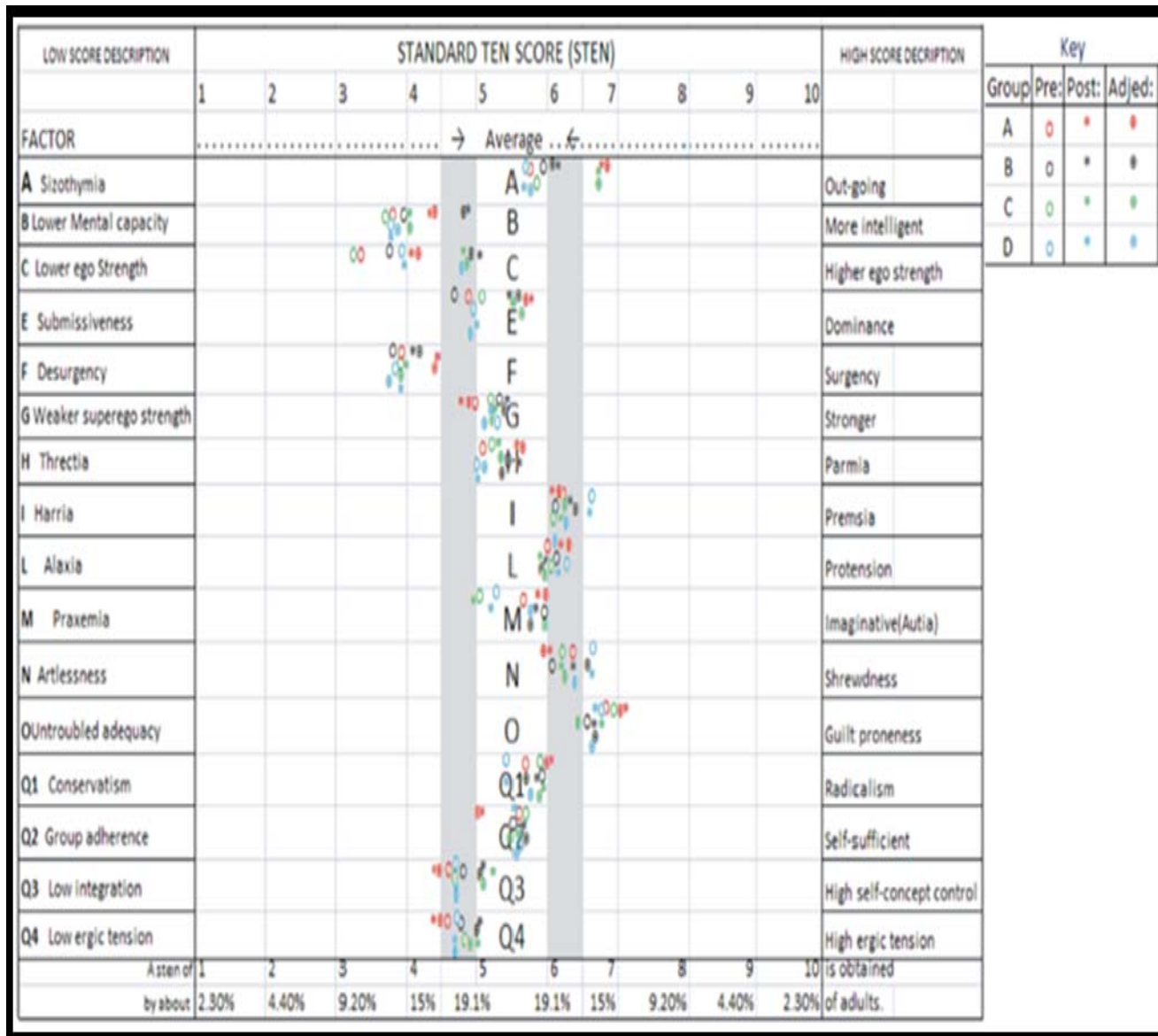


Fig 1: Personality profile of college students.

Table 1 and Figure 1 clearly indicate no significant differences in any of the 16 P.F. in pre test phase. In case of post test phase out of sixteen personality factors significant differences were noticed in personality Factor- A (Reserved v/s Outgoing), Factor-C (Affected by feelings v/s Emotionally Stable), and Factor-Q₃ (Undisciplined Self-conflict v/s High

Self-concept control) only. Whereas, in case of adjusted post test phase out of sixteen personality factors significant differences were noticed in Factor-A (Reserved v/s Outgoing), Factor- C (Affected by feelings v/s Emotionally Stable), Factor-E (Humble v/s Assertive), Factor-O (Placid v/s Apprehensive) and Factor-Q₃ (Undisciplined Self-conflict v/s

High Self-concept control) only. From the aforesaid Table and figure it was noticed that almost all the mean values of personality factors were laying on lower average to high average domain of personality profile which were increased in some extend to more higher domain from respective Initial position. Due to the effect of one of the experimental training programme namely aerobic training, Hatha yoga training, and combination of hatha and yoga aerobic training. On the other hand in control group, no notable change of mean values in any of the sixteen's P.F was noticed. Further it was seen that Aerobic training were found to be slightly more effective in Factor-A (Reserved v/s Out-going), Factor-E (Humble v/s Assertive), Factor-F (Desurgency v/s Surgency), Factor-O (Placid v/s Apprehensive), Factor-Q₁ (Conservative v/s Experimenting), in compression to the hatha yoga training and combination of hatha yoga and aerobic training, whereas the hatha yoga training was found to be slight more effective in personality Factor-B (Less Intelligent v/s More Intelligent), Factor-C (Affected by feelings v/s

Emotionally Stable), Factor-G (Weaker Superego strength v/s Stranger Superego strength), Factor-I (Tough-Minded v/s Tender-Minded), Factor-N (Forthright v/s Shrewd), Factor-Q₂ (Group dependent v/s Self-sufficient), Factor-Q₃ (Undisciplined Self-conflict v/s High Self-concept control) and Factor-Q₄ (Low ergic tension v/s High ergic tension) in comparison to the aerobic training and combination of hatha yoga and aerobic training.

The aerobic training was assumed to develop the personality factors namely out-going to reserved, assertive to humble, surgency to desurgency, venturesome to shy, tender-minded to tough-minded, suspicious to trusting, imaginative to practical, apprehensive to placid and experimenting to conservative.

Whereas, the hatha yoga training was assumed to develop the personality factors namely more intelligent to less intelligent, emotionally stable to affect by feelings, stronger superego strength to weaker superego strength, tender- minded to tough-minded, shrewd to forthright, self-sufficient to group dependent, high self-concept control to undisciplined self-conflict and high ergic tension to low ergic tension.

Table 2: Paired adjusted final means and difference between means of four different groups related to personality factor –A

Aerobic group (A)	Hatha yoga group (B)	Combination of Aerobic & Hatha yoga group (C)	Control group (D)	Mean difference	Critical difference
6.82	6.17			0.65*	0.12
6.82		6.72		0.10	0.12
6.82			5.77	1.05*	0.12
	6.17	6.72		0.55*	0.12
	6.17		5.77	0.04	0.12
		6.72	5.77	0.95*	0.12

*Significant at 0.05 level of confidence.

Table 2 and Figure 1 revealed no significant difference in personality factor-A in pre test means ($F = 0.02 < 2.72$ at 0.05 level of confidence with 3, 96 degree of freedom) among three experimental training groups and one control group.

In the pre test phase it was noticed that the mean values of aerobic training ($M=5.88$), hatha yoga ($M=5.96$), and combination of hatha yoga and aerobic training ($M=5.92$), and control group ($M=5.84$) were almost the same. From such findings it may be assumed that, initially there was no significant difference in means of personality factors-A among aerobic training group, hatha yoga group, and combination of hatha yoga and aerobic training group and one control group. However significant differences in personality factor-A (Reserved v/s Out-going) in post and adjusted post test means were observed ($F=2.97$ and $4.98 > 2.72$ and 2.71 at 0.05 level of confidence with 3, 96 and 3, 95 degree of freedom respectively).

In the aforesaid table on the vertical view, it was noticed that the mean values of personality factors-A of training groups namely aerobic training, hatha yoga, and combination of hatha yoga and aerobic training group increased significantly from pre to the post and adjusted post-test phases, whereas, no such increase in mean values of control group from pre to the post and adjusted post-test phases were observed.

Further on horizontal view, it was noticed that, in the post test phases the average mean value of training groups was 6.57 which was found to be greater than mean value of corresponding mean value of control group (5.72).

Aerobic training and hatha yoga training and combination of hatha yoga and aerobic training were such attracting arena which motivates an individual with high intensity to come out from the home to the gymnasium with teammates helping them to unfold his oneness. The most popular fitness in the world means are the aforesaid training programmes which

attract almost entire population into its arena.

The aforesaid training method helped to develop physical fitness ability. The fit persons are always heartily accepted by others, because of their high adjustment ability. Thus, fit individual gradually comes out from the zone of reserved mindedness and characterized as outgoing.

While the low physical fitness persons are gradually becomes reserve minded as their overall adjustment ability is also low.

From such findings it might be assumed that aerobic training, hatha yoga training, and combination of hatha yoga and aerobic training were having some positive effect in developing outgoingness personality factor-A and probably because of such reason the mean value of personality factor-A of experimental groups increased from pre to the post-test phases. On the other hand in control group such enhancement in mean values from pre to post test phase was not observed.

This study is in consonance with the findings of Marrison.

Further in the table 2 from the pre to post test phase although the significant effect of all the trainings, namely aerobic training, hatha yoga training and combination of hatha yoga and aerobic training undertaken in this study in improving personality factors-A (Reserved v/s Out-going) was noticed, however the effect of aerobic training in increasing personality factor-A was found to be higher than that of hatha yoga and combination of hatha yoga and aerobic training.

In this study it is seen that by aerobic training the fitness ability is enhanced in greater range than that of hatha yoga and combination of hatha yoga and aerobic training. It is also seen that higher the fitness, higher is the outgoingness, because of such reason the aerobic training was found to be effective in improving the outgoingness ability.

This study is in consonance with the findings of Bhattacharjee, Datta, Young and Ismail.

5. Conclusion

The hatha yoga training is also found to be more effective in changing the personality Factor-C (Affected by feeling v/s Emotionally stable) and Factor-Q₃ (Undisciplined self-conflict v/s High self-concept control) towards the higher range of the personality profiles in comparison to the effect of aerobic training and combination of hatha yoga and aerobic training on aforesaid personality factors under taken in this study.

However in respect to personality factors -A (Reserved v/s Out-going), Factors-E (Humble v/s Aggressive) and Factor-O (Less Intelligent v/s More Intelligent) the aerobic training programme is found to be more effective in changing aforesaid personality factors A- (Reserved v/s Out-going), Factors-E (Humble v/s Aggressive) and Factor-O (Placid v/s Apprehensive) towards the higher range of the personality profiles, in comparison to the effect of hatha yoga and combination of hatha yoga and aerobic training on aforesaid personality traits under taken in this study.

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