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Effect of Yogic Exercise and Physical Exercise on Physical Health and Mental Health in Agricultural Students

Dr.V.Vallimurugan[1] & R. Arivazhagan[2]

[1]*Asst. Professor, Department of Physical Education, Bharathiar University, Coimbatore, Tamilnadu, India.*
[2]*Director of Physical Education, College of Agricultural Technology, Kullapuram, Theni, Tamilnadu, India.*

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Abstract

In this papers we worked to find the comparing of deposit time of thin films and find that the films deposited at 60 minutes and 90 minutes it's the best films as compared with 30 minutes and 120 minutes in a structure and the optical properties exception of optical properties transmittance and absorbance. Films transmittance values decreased with increasing of the deposition time, but that's lead to increase in absorbance values. Energy gap depends on thickness and grain size. Films that deposit at 120 min has more thickness than the one at 90 min., 60 min. and 30 min. films. All that after annealing temperature at 400 C^o and 500 C^o . Grain size of films that treated at 500 C^o is greater than the films that treated at 400 C^o. Grain size appears, affected by the increasing of annealing temperature and deposition time.

Keywords: Chemical Bath Deposition, CBD, CdS thin films, cadmium sulfide, band gap, annealing.

Introduction

Yoga provides one of the best means of self-improvement and attaining one's full potential. It is generally held that the advanced stages of yoga, super conscious states are attained which result in a feeling of bliss, deep peace and the emergence of psychic powers. Yoga was developed and perfected over the centuries by philosophers and mystics in India. It is basically a method by which we increase the body's supply of energy and remove any interference to the transmission of energy throughout the body. Yoga has specialized in this subject for thousands of years and stream lined the methods to attain this aim. Along with meditation, it is probably one of the most popular alternative therapies today in India. Many physicians, who are skeptical about the efficacy of alternative medicine, show a tendency to support yoga with a passion in recent years. The best part of it is that it is something that can be done in the comfort of our home. Various Yogic practices such as body postures, breath regulation, cleansing procedures, and meditation will go a long way towards better health and relaxation. Physical exercise is the state of being active with action or movement. Physical activity can increase the basal metabolic rate by approximately 10%. This increase can last for upto 48 hrs after the completion of the activity. It helps burn calories. The number of calories used is dependent on the type and intensity of activity, and on the body weight of the person performing the physical activity. It also helps in the maintenance and control of weight. According to the American college of sport medicine physical activity of less than two times a week at less than 60% of the maximum heart rate, for less than 10 minutes per day, does not assist in developing and maintaining fitness. If physical activity is discontinued, the fitness benefits are completely lost, and the person has to restart again. 20 minutes of continuous aerobic activity three days per week is recommended for weight loss. Examples of physical activity that are considered aerobic are walking, running, jogging, swimming, bike riding, rowing, jumping rope, etc.

Correspondence
R.Arivazhagan
E-mail: arivu2you@gmail.com, Ph. +9196886 95022

Methods and Materials

Subjects

The investigation was carried out on two independent groups of subjects. Sixty healthy volunteers were randomly selected and were assigned two groups of 30 subjects each. They were in the age range of 20 - 25 years. First group was the Yoga group which consisted of 17 males and13 females. The second group was the physical exercise group which consisted of 20 males and 10 females. After these subjects were randomly assigned to these two groups. They attended yoga classes regularly and practiced yoga under guidance of qualified yoga teachers. The subjects in the physical exercise group started practicing brisk walk regularly in the morning hours.

Tools Used

In the present study the following physiological and psychological tools were employed.

1. Sphygmomanometer – blood pressure was recorded. For all the subjects using Sphygmo manometer. It was recorded with the subjects in the supine position.
2. Weighing Machine: Body weight of all the subjects was recorded using the standard weighing machine.
3. The pulse rate was recorded for all the subjects. The rate of radial artery pulsations was recorded by palpatory method.
4. General health questionnaire. In the present study mental health assessment of all the subjects in both the groups was made using the general health questionnaire developed by D.P. Goldberg and V.F. Hillier (Dept. of Psychiatry, University of Manchester).

Procedure

Initially base line recordings of four physiological parameters mainly systolic blood pressure, diastolic blood pressure, pulse rate, body weight were recorded individually for all the subjects in both Yoga group and physical exercise group. Later their mental health assessment was made by administering general health questionnaire. The questionnaire was administered in a quite atmosphere in small groups. Very clear instructions regarding the questionnaire were given. It was made sure that every subject understood the procedure. They are asked to give spontaneous responses to each item of the questionnaire.

Results and Discussion

Table 1
Sample Characteristics

SL No		Physical Exercise Group	Yoga Group
1	No. of Subjects	30	30
2	Male	20	17
3	Female	10	13
4	Age	20-25 Years	20-25 Years

Table 1 shows the sample characteristics. 30 subjects were assigned in each group they were in the age range of 20 - 25 years. First group was the physical exercise group consisting of 20 males and 10 females. The second group was the yoga group consisting of 17 males and 13 females.

Table 2
Showing pretest and post test physiological variables for the yoga group pre test

SL. No.	Variable	Mean	t	p
1	Systolic BP	115.85 ± 10.25	9.28	0.00
2	Diastolic B	77.80 ± 9.99	6.96	0.00
3	Pulse rate	68.65 ±5.86	7.18	0.00
4	Weight	65.80± 8.61	6.72	0.00

Table 3
Showing pretest and post test physiological variables for the yoga group post test

SL. No.	Variable	Mean	t	p
1	Systolic BP	116.80 ± 10.58	9.27	0.00
2	Diastolic B	77.83 ± 6.38	6.93	0.00
3	Pulse rate	68.57 ±4.20	7.10	0.00
4	Weight	64.00± 8.18	6.70	0.00

The data obtained on yoga practitioners for all the physiological parameters before and after training in yoga are presented in Table –2 &3 . The da ta was analysed to find out whether there is any significant difference in the scores obtained befor e and after yoga training, in other words the impact of Hatha Yoga Practice on physiological para meters. In the pre-training testing, the mean score of systolic blood pressure was 115.85 and when tested after six week of yoga the systolic blood pressure was 116.80. The difference between the means yielded a t-ratio of 0.548 which was statistically not significant. The mean diastolic blood pressure of the group before yoga training was 77.80 and it was tested after training also, it was 77.83 which shows that there was no difference in the mean diastolic blood pressure measured before and after yoga training. Before yoga training the group recorded the mean pulse rate of 68.65 and it was 68.57 after yoga training. The

difference between both means and yielded a tratio of 0.908 which was statistically not significant. The mean body weight of the group was 65.80 before yoga training and after training it was 64.00. The mean difference between the two scores gave a tratio 6.100 which was significant at 0.00 level. Of all the four physiological variables that were measured, body weight reduced significantly after Yoga training whereas the remaining variables namely systolic BP, Diastolic BP, pulse rate did not show any significant change.

Table 4
Showing pretest and post test physiological variables for the yoga group pre test

SL .No.	Variable	Mean ± SD	t	p
1	Somatic symptoms	6.90 ±3.63	9.28	0.00
2	Anxiety and insomnia	6.34 ± 4.15	6.94	0.00
3	Social dysfunction	6.28 ± 4.28	7.10	0.00
4	Severe depression	5.94 ± 4.62	6.70	0.00

Table 5
Showing pretest and post test physiological variables for the yoga group post test

SL .No.	Variable	Mean ± SD	t	p
1	Somatic symptoms	2.10 ±2.06	9.27	0.00
2	Anxiety and insomnia	1.50 ± 1.61	6.92	0.00
3	Social dysfunction	1.90 ± 2.29	7.10	0.00
4	Severe depression	2.10 ± 2.92	6.70	0.00

The data obtained from yoga practitioners on the physiological variables before and after training are presented in Table – 4 & 5. The mean scores obtained before yoga training on somatic symptoms was 6.90 and after six weeks training it was 2.10. The mean difference gave a tratio of 9.28 which was highly significant at 0.01 level. On anxiety and insomnia variable, the group obtained a mean score of 6.34 before training and the score was 1.50 after training. The mean difference yielded a tratio 6.92 which was significant at 0.01 level. On the variable social dysfunction the group obtained a mean score of 6.28 before training and 1.90 after training. The mean difference between the two scores obtained on two occasions was significant at 0.01 level with a tratio of 6.70. The date obtained on psychological variables for yoga training group on six weeks training reveals that there is a significant difference between the scores.

Table 6
Showing pretest and post test physiological variables for the physical exercise group pre test

SL. No.	Variable	Mean ± SD	t	p
1	Systolic BP	116.50 ± 7.67	9.27	0.00
2	Diastolic B	76.50 ± 8.42	6.92	0.00
3	Pulse rate	69.73 ± 3.06	7.11	0.00
4	Weight	66.57 ± 8.21	6.73	0.00

Table 7
Showing pretest and post test physiological variables for the physical exercise group post test

SL. No.	Variable	Mean ± SD	t	p
1	Systolic BP	115.50 ± 6.48	9.28	0.00
2	Diastolic B	74.50 ± 7.58	6.95	0.00
3	Pulse rate	68.43± 2.74	7.10	0.00
4	Weight	65.40 ± 7.64	6.71	0.00

Table – 6 & 7 shows the mean scores of physical exercise group on all the physiological parameters measured before and after six weeks practice in the morning. The data was analysed to find out whether there is any significant difference in the physiological parameters measured before and after six weeks. Before the group was introduced to physical exercise, the mean score for systolic blood pressure was 115.50, difference between the two means yielded a tratio of 1.099 which was not statistically significant. The group maintained mean diastolic pressure of 76.50 and 74.50 before and after six weeks practice. The difference between the means was significant at 0.01 level with a tratio of 2.693 the mean pulse rate of the group was 69.73 and 68.43 before and after yoga training respectively. The difference between the means gave a tratio of 2.973 which was significant at 0.006. The mean body weight of the group was 66.57 and 65.40 before and after training in physical exercise. The mean difference was found tobe significant at 0.01 level with a tratio of 5.299. Thus the results of the physical exercise group reveal that there is a statistically significant difference on diastolic blood pressure, pulse rate and body weight assessed before and after six weeks.

Table 8
Showing pretest and post test physiological variables for the physical exercise group pre test

SL .No.	Variable	Mean ± SD	t	p
1	Somatic symptoms	3.92 ±2.68	9.28	0.00
2	Anxiety and insomnia	5.27 ± 3.86	6.95	0.00
3	Social dysfunction	6.67 ± 3.27	7.14	0.00
4	Severe depression	2.63 ± 2.39	6.68	0.00

Table 9
Showing pretest and post test physiological variables for the physical exercise group post test

SL. No.	Variable	Mean ± SD	t	p
1	Somatic symptoms	3.83 ±2.61	9.28	0.00
2	Anxiety and insomnia	4.60 ± 3.65	6.95	0.00
3	Social dysfunction	5.43 ± 3.16	7.14	0.00
4	Severe depression	1.70 ± 2.25	6.68	0.00

The data of the physical exercise group on the physiological variables that was obtained and after training are presented in Table – 8 & 9. Before the group was introduced to physical exercise it obtained a mean score of 3.92 on somatic symptoms and it was 3.83 after training The mean difference was statistically not significant. On anxiety and insomnia variable the group obtained a mean score of 5.27 and 4.60 before and after training respectively. The mean difference was significant at 0.01 level. On social dysfunction the mean score was 6.67 before training and it was 3.16 after training. The difference between means was significant at 0.01 level with a tratio of 5.798. On severe depression variable pre training score of the group was 2.63 and at post training it was 1.70, the mean difference yielded tratio of 5.635 which was significant at 0.01 level.

The data of physical exercise group on psychological variables shows that the group's performance on anxiety and insomnia, social dysfunctions and severe depression differed significantly after six week. Examining the results presented in the above tables, it appears that on physiological variables, physical exercise caused significant change in diastolic blood pressure, pulse rate and body weight whereas yoga training caused significant change only in body weight. Initial examination suggests that physical exercise had broader impact on physiological variables than yoga training. However, closer look at the data suggests that the mean scores on all the physiological variables were within the normal range both before and after training. The participants were enjoying good health even before they started yoga or physical exercise. Even after training their health status continued in the normal limits.

Conclusion

In conclusion it may be said that since both physical exercise group and yoga training group comprised of very healthy subjects, the impact of training is not glaring, including a control group and a clinical group such as obese or hypertension would certainly bring about subtle differences in the two systems. Regarding the psychological variables both yoga and physical exercise group showed significant change except in the case of somatic symptoms. In addition to these variables of assessment of subjective well being is also made on both the group before and after training, would give us an opportunity to compare the merits of these two systems.

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