SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

It has been acknowledged that yoga, an indigenous physical, mental training has positive effect on physical, physiological and mental health of human beings. Hence such a valuable means and methods of yogic exercises, when combined with calisthenics based aerobic and resistance training, its value on improving the physical and physiological aspects would be high. Particularly in India the state of sedentary life is exist higher among the population of college students since this is the period decides their future carrier.
Objectives of the Study

1. The major objective is to study by way of comparison the effects of a new package of training mixing Yoga with Aerobic and Resistance Training, instead of simple and mere yogic training. For this purpose, three packages of combinations were used. The first package CYEAT is Combination of Yogic Exercises and Aerobic Training and second package CYERT a Combination of Yogic Exercises and Resistance Training, while the third one was CYEART Combination of Yogic Exercises with Aerobic and Resistance Training on health related physical fitness components, body composition indices and select physiological variables of college men.

2. To study the individualized effect of varied combinations of training packages --- CYEAT, CYERT and CYEART on health related physical fitness components, body composition indices and select physiological variables of college men.

Hypotheses

1. It was hypothesized that there may be significant difference among the interventions of varied combinations of training chosen (CYEAT, CYERT and CYEART) on health related physical fitness components, body composition indices and select physiological variables of college men students.
2. It was hypothesized that the CYEART may be expected to provide a superior training stimulus.

3. As far as changes, the health related physical fitness components, body composition indices and select physiological variables of college men students, it is hypothesized that CYEAT and CYERT have the similar effects.

4. It was hypothesized that interventions of varied combinations of training such as CYEAT, CYERT and CYEART would have significant improvement on health related physical fitness components, body composition indices and select physiological variables as compared to Control Group.

5. In studying the individualized effect, it was hypothesized that interventions of varied combinations of training such as CYEAT, CYERT and CYEART would have significant improvement from base line to post treatment on health related physical fitness components, body composition indices and select physiological variables of college men students.

Selection of Subjects

To achieve the purpose of the study, eighty men were randomly selected as samples of college students, by using Health Related Physical Fitness index. They were divided into four groups consisting of 20 each.
Group I is administered the Combination of Yogic Exercises with Aerobic Training (CYEAT), Group II, the Combination of Yogic exercises with Resistance Training (CYERT), Group III the Combination of Yogic exercises with Aerobic and Resistance Training (CYEART) and Group IV were constitute the Control Group.

Training Schedule

Subjects in the Group I - CYEAT underwent 30 minutes of Yogic Exercises and 30 minutes of Aerobic Training with an interval of five minutes. Group II CYERT underwent 30 minutes of Yogic Exercises and 30 minutes of Resistance Training with an interval of five minutes. Group III CYEART underwent Yoga cum Aerobic Training for three days in a week (Monday, Wednesday & Friday) and Yoga cum Resistance training for three days in a week (Tuesday, Thursday & Saturday). The fourth group acted as Control Group (CG). The training was given to all the groups except the CG for six days a week for twelve weeks under the supervision of the investigator.

The subjects were tested on health related physical fitness components of flexibility, muscular strength and endurance, cardio respiratory endurance, body composition characteristics such as body weight, percent body fact, fat mass, lean body mass and physiological variables of resting heart rate, resting systolic and diastolic blood pressure and maximum breath holding time at prior and immediately after 12 weeks of training programme.
Results

The results obtained on comparative effects and individualized effects of varied forms of concurrent training on health related fitness components, body composition indices and selected physiological variables of college men students are briefly stated below.

Results on Pre-Test Means

In testing the pre test means among the varied combinations of yoga with aerobic, yoga with resistance and combination of yoga with aerobic and resistance and control group on criterion variables (flexibility, muscular strength and endurance, cardio respiratory endurance, body weight, percent body fat, fat mass, lean body mass, resting heart rate, resting systolic blood pressure, resting diastolic blood pressure and breath holding time the obtained F-ratios were not statistically significant since they failed to reach the critical value (2.72 for df 3,76) at 0.05 level. Thus the obtained results on pre test mean confirm the random assignment of subjects into different groups was confirmed.

Results on Post-Test Means

The post test means among the varied combinations of yoga with aerobic, yoga with resistance and combination of yoga with aerobic and resistance and control group on criterion variables revealed significant mean difference was found on flexibility, muscular strength and endurance, cardio respiratory endurance, percent body fat, fat mass, resting heart rate, resting systolic blood
pressure, resting diastolic blood pressure and breath holding time since the obtained F-ratios were found as higher than the required critical value. Further, in the cases of body weight and lean body mass no difference was found since the obtained F-ratios failed to reach the critical value (2.72 for df 3,76) at 0.05 level.

**Results on Adjusted Means**

The pre test means among the varied combinations of yoga with aerobic, yoga with resistance and combination of yoga with aerobic and resistance and control group on criterion variables (flexibility, muscular strength and endurance, cardio respiratory endurance, body weight, percent body fat, fat mass, lean body mass, resting heart rate, resting systolic blood pressure, resting diastolic blood pressure and breath holding time revealed significant mean difference, since the F-ratios on the above said criterion variables exceeds the required critical value (2.73 df 3,75 at 0.05). Thus the obtained results on adjusted means statistically confirm the differences do exist after completion of treatment period on criterion variables among the varied combination of experimental groups and control group.

**Results on Testing the Effect of Treatments**

On testing the individualized effect of varied combinations of yoga with aerobic, yoga with resistance and combination of yoga with aerobic and resistance and control group on criterion variables such as flexibility, muscular strength and endurance, cardio respiratory endurance, body weight, percent body fat, fat mass, lean body mass, resting heart rate, resting systolic blood pressure, resting diastolic
blood pressure and breath holding time the data collected prior to the treatment and after completion of treatment were analyzed using the paired t-test. From the results, it was observed that each training module has produced significant development positively on criterion variables from their base line to post treatment except lean body mass on CYEAT and CYERT. As far as control group was concerned, the changes made from the base line to post treatment were not significant other than the body composition indices (body weight, percent body fat, fat mass and lean body mass). Though the changes observed on body composition indices from the baseline to post treatment was a significant one, which was a adverse effect for the subjects.

**Results on Post-hoc Test**

On comparing the effect of combination of training such as CYEAT, CYERT CYEART and control group on criterion variables health related physical fitness, body composition indices and selected physiological variables of college men students, the observed results were as follows.

The effect of CYEART (combination of yogic exercises with aerobic and resistance training) was found as superior in the development of flexibility, abdominal muscular strength and endurance, lean body mass. Likewise it was significant in the reduction of body weight, percent body fat, fat mass, systolic and diastolic blood pressure as compared to other groups CYEAT (combination of yogic exercises with aerobic training) and CYERT (combination of yogic exercises
with resistance training). Further in comparing the effectiveness of CYEART (combination of yogic exercises with aerobic and resistance training) with the effect of CYEAT (combination of yogic exercises with aerobic training) no difference was found on cardio respiratory endurance, resting heart rate resting systolic blood pressure and breath holding time. Thus it was concluded that in these variables both trainings were found to have similar effect. Likewise, in comparing the effectiveness of CYEART and CYERT (combination of yogic exercises with resistance training) similar effect was found in cardio respiratory endurance, lean body mass, resting heart rate and breath holding time.

In testing the comparative effects between the CYEAT and CYERT on variables used in the study, similar effect was observed in most of the variables namely flexibility, cardio respiratory endurance, body weight, percent body fat, fat mass, lean body mass, resting heart rate and resting systolic blood pressure. But in the performance of remaining variables after 12 weeks of training, CYERT was found to be better in the development of abdominal muscular strength and endurance as compared to CYEAT. Regarding the variables of resting systolic blood pressure and breath holding time the effect of CYEAT showed dominance over to the CYERT.

On comparing the effects of CYEAT, CYERT and CYEART with Control group, it was observed that all the treatment groups improved significantly on criterion variables flexibility, muscular strength and endurance, cardio respiratory
endurance, body weight, percent body fat, fat mass, lean body mass, resting heart rate, resting systolic blood pressure, resting diastolic blood pressure and breath holding time.

Conclusions

From the results of the present study, the following conclusions have been made.

1. The main aim of the present study was to test the effectiveness of CYEART on health related physical fitness, body composition indices and select physiological variables, its effect was highly positive in the development of flexibility, abdominal muscular strength and endurance, and reduction in body weight, percent body fat, fat mass, and diastolic blood pressure as compared to the CYEAT and CYERT. The obtained results on health related physical fitness and body composition indices lead to conclude that though the yogic exercises have significant influence in the development of human health, its effect can be maximized when combined with aerobic and resistance training.

2. Since the present study evidenced similar effect on cardio respiratory endurance, resting heart rate, and breath holding time between the effect of CYEART and the effect of CYEAT and CYERT. It was concluded that as far as development of variables related to cardio and respiratory functions are concerned the CYEAT is as good as to CYEART.
3. Resultant effect of yogic exercises, when added with either aerobic form of training or resistance form of training on most of the variables on health related physical fitness i.e. flexibility, cardio respiratory endurance and body composition indices i.e. weight, percent body fat, fat mass and lean body mass and heart rate is in similar as per the results of the study. Hence the results show that adding either aerobic or resistance training with yogic exercises is an advisable one to enhance the health status of college men.

**Recommendations**

The following recommendations have been made from the results of the study.

1. The packages used by the researcher may be recommended to the college men and school boys with low physical fitness levels for enhancing their fitness.

2. These packages may be variously designed for general improvement of health fitness of the young people in various age groups.

3. Revised packages may be recommended for high fitness level sports persons.

4. The same study may be extended to other performance related factors and fundamental skills development of various games and sports.

5. A study of the same sort can be dealt with for prevention of injuries and recovering from injuries.

6. The present study is mainly focused on men only. The same study may be done on women.

* * * * *