ABSTRACT

Physical fitness is now more or less a matter of national concern. The strength of democracy is the collective well-being of our people. We live in a labor saving and mechanized society, which is eliminating more and more physical exertion from our day to day life. The industrial development is responsible for mechanical devices such as washing machine, water motor, vacuum cleaner, cooking gas, vehicles and telephone system and the like which have reduced human labour for domestic work, dish antenna, radio, internet, tape recorder have reduced normal physical activities such as playing in field, walking and other daily routine work. Due to reduced physical labour the effects of a sedentary life style can be seen in people around us, Over weight, poor flexibility, diminished muscles tone, bad posture, sluggish-ness, lack of breath, poor cardio vascular endurance, when performing even simple work, there are some common signs that something is wrong with the way we live.

Yogic practices and physical exercises are essential for the development of wholesome personality of the child that would depend upon the opportunity provided for wholesome development of the mental, physical, social, and spiritual aspects. Hence a well organized and properly administered physical education programme for school children is very essential to improve the physiological variables. This is because of various physiological systems in our body such as nervous system, circulatory system; glandular system, muscular system etc. become slowly conditioned to maintain harmony with each other by these practices which ultimately lead to this stability of the body and mind.

The purpose of this study was to investigate the Effect of exercises and certain yogic practices on selected physiological variables.
Keeping in view the objectives of the study following hypothesis were formulated –

1. It was hypothesised that yogic practices (Asana and pranayama, Kriya) will affect more positively than Exercises on the physiological variables.

2. It was further hypothesised that a combined exercise yogic programmes would be more effective in improving the selected physiological variables than the individual programme of yoga and exercise.

In light of resources available the physiological variables were selected for the study as under below –

**Physiological Variables**

1- Resting pulse rate  
2- Resting blood pressure  
3- Vital capacity  
4- Respiratory rate  
5- Breath holding capacity  
6- Peak air flow rate  
7- Cardio vascular efficiency

**Haematological Variables**

1- Red blood cells counts  
2- White blood cells counts  
3- Platelets counts  
4- Blood sugar level
5- Total cholesterol
6- High density lipoprotein cholesterol (HDL-C)
7- Low density lipoprotein cholesterol (LDL-C)

Eighty (80) male students of Engineer’s colony senior secondary school, Aligarh (U.P.) were divided into four equated groups of 20 each. The first three groups namely ‘A’, ‘B’, and ‘C’ was subjected to yogic practices, especially designed exercises programme and combined (yoga and exercises) programme. The fourth control group ‘D’ was not subjected to any experimental group. The age of subject was taken from the college records and average age was 15-17 years. The purpose of study was clearly explained to the subjects. All Subjects were novice and voluntarily agreed to extend full co-operation and efforts for successful completion of investigation. The data of physiological variables of subjects was recorded prior and after the experimental period.

The whole training programme for the experimental groups ‘A’, ‘B’ and ‘C’ was carefully and systematically planned. The experimental group ‘A’ did 12 yogic programme namely Shrishasana, Sarvangasana Matsyasana, Halasana, Bhujangasana, Salbhasana, Dhanurasana, Ardha-Matsyendrasana , Paschimottanasana, Shavasana, Kapalbhati and Anuloma vilom.

The experimental group ‘B’ did Ten especially designed exercises programme consist of Spinal Rock, Back over, Side stretches, Alternative Prone lifts, One leg jumping, Line walking after front roll, 5-meters dash ,Raising the hands with folded hands, Walking on hands with partner ,Stride stretches. The experimental group ‘C’ did combined (yoga and exercises) programme. The experimental groups underwent the training programme for yogic practices, exercises and the combined of (yoga & exercises) programme respectively under the guidance of three
assistance at same place at one time under careful supervision of the research scholar for a period of twelve weeks in 5 days per week at 7.30 a.m. to 9.00 a.m. in Engineer's colony senior secondary school Aligarh from October to January 2009-2010. The objective reflected exactly what was expected of the subjects after going through the training programme. The control groups 'D' was not allowed to undergo the training programme.

To establish the comparative effect of the yogic practices exercises and combined (yogic practices and exercises) on selected physiological variables, the data were examined by applying analysis of co-variance. The level of significance chosen was 0.05 present.

**CONCLUSIONS**

Based on the understanding after deliberate discussion with experts and the supervisor and also in light of the above understanding following conclusions were finally drawn:-

1. All experimental groups (yogic practices, combined, exercise) have shown significant decrease in pulse rate and no significant change were observed in control group.

2. All experimental groups (yogic practices, combined, exercise) have shown significant increase in Peak Air flow rate and no significant change was observed in control group.

3. All experimental groups (yogic practices, combined, exercise) have shown significant increase in vital capacity and no significant change was observed in control group.

4. All experimental groups (yogic practices, combined, exercise) have shown significant decrease in respiratory rate and no significant change was observed in control group.
5. All experimental groups (yogic practices, combined, exercise) have shown significant increase in breath holding capacity and no significant change was observed in control group.

6. All experimental groups (combined, yogic practices, exercise) have shown significant increase in cardiovascular endurance and no significant change was observed in control group.

7. All experimental groups (combined, yogic practices, exercise) have shown significant increase in red blood cells and no significant change was observed in control group.

8. Experimental groups (yogic practices and combined group) have shown significant decrease in W.B.C., but there was no significant change found in exercises and control groups.

9. All experimental groups (yogic practices, combined, exercise) groups have shown no significant change in platelets and also no significant change was observed in control group.

10. All experimental groups (yogic practices, combined, exercise) have shown no significant change in blood sugar and also no significant change was observed in control group.

11. All experimental groups (combined, yogic practices, exercise) have shown significant decrease in total cholesterol and no significant change was observed in control group.

12. All experimental groups (combined, yogic practices, exercise) have shown significant increase in H.D.L. and no significant change was observed in control group.

13. All experimental groups (combined, yogic practices, exercise) have shown significant decrease in L.D.L. and no significant change was observed in control group.

14. It is concluded that significant difference were found in the plus rate, systolic blood pressure, diastolic blood pressure, air flow rate,
respiratory rate, vital capacity, breath holding capacity, cardiovascular endurance, red blood cells, white blood cells, total cholesterol, high density lipoprotein and low density lipoprotein.

15. It is concluded that no significant difference were found in the platelets and blood sugar by any experimental groups.

16. Evidence also has been found that the mean gain achieved by yogic practices were higher in plus rate, systolic blood pressure, diastolic blood pressure, peak air flow rate, respiratory rate, vital capacity, breath holding capacity, and white blood cells.

17. Evidence also has been found that the mean gain achieved by combined group were higher in cardio vascular endurance, red blood cells. Total cholesterol was more decreased with more increase in high density lipoprotein and decrease in low density lipoprotein through combined programme than other programmes.

18. The yogic practices and combined practices were more effective than exercise programme in the selected physiological variables.

RECOMMENDATIONS:

In the light of the result, the following recommendations have been made:

1. The result of this study may be helpful in preparing some conditioning / training programme for young athlete for the development of selected physiological variables.

2. The findings of this study may be some curative and therapeutic value in relation to cardio-respiratory disease.

3. Similar study may be conducted by using sophisticated equipment, training with greater frequency and duration with more number of subjects.
4. It is recommended that the same study may be conducted to determine the comparative effect of selected yogic and exercise practices with reference to certain games and sports.

5. A similar study may be undertaken on same age of girl’s student.

6. A similar study may be undertaken with middle age group population.

7. A similar study may be undertaken on employing subjects of various age groups, with closer ranges so that the intensity and duration of the activity shall be more precisely suggested.

8. A similar study may be undertaken by selecting yogic practices and exercises other than chosen in this study.

9. A similar study may be undertaken on other physiological and hematological variables, which is not selecting in this study.

10. A similar study may be also undertaken on psychological variables.

11. The findings of this study may be utilized by the physical education teachers, coaches and physiologist to bring about desired changes.