Chapter V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

The physical education programme today is the product of long historical evolution. It is human tendency to be complete and rhythmic. Movement creates a sense of well-being. Any exercise or activity, in the long run, would produce some physiological adaptations in the body. Moreover, exercise increases the capacity for more exercise in the organism.

Regular stimulation of the total body through exercises increase energy and vitality, besides promoting the numerous variables associated with good health and physical fitness.

‘Handicap’ word often is associated with reduced physical fitness and increasing number of physically and mentally handicapped persons live ‘below’ or ‘at’ just above the threshold of their physical ability, and are very much dependent on others. Gradual physical training can readily produce a profound improvement of functions essential for physical fitness in physically challenged.
According to Getchell training increase blood volume and raises the level of oxygen carrying haemoglobin. The improved delivery and use of oxygen results in better endurance performance, gradual or graded exercise also has even been shown to be useful in lowering resting blood pressure.

Impairments or disabilities impede the normal development of individuals. There are, however, ways to reduce this discrepancy through restorative, habilitative and rehabilitative inputs, including education.

There are many psychological problems faced by a deaf person. The basic problem arises due to lack of communication with the society. The deaf person’s unawareness of the sound also causes another defect in him i.e. dumbness or muteness. Without two of the vital communication means, frustration creeps in them and become more and more rigid day by day.

More recently, aggression has come to be viewed as one of the possible reaction. This has a negative impact on the individual’s performance and on the institution where they work, too.
Today, for disabled person, self-help remedies, techniques, do-it-yourself approaches and physical exercises (of course for them it should be graded one) are being given much attention. Some individual coping strategies are:

- Physical Exercises
- Relaxation
- Behavioral Self-control
- Cognitive Therapy
- Social Networking, etc.

Devoid of the basic needs, doesn't mean that they do not have feelings, like other human beings, they have imaginations, dreams and concepts for their life, too.

The present investigation undertaken by the research scholar is an attempt to analyze the physiological changes due to the graded exercise programme in deaf and dumb children of 14-20 years of age. Fifty male children from Jyoti Badhir Vidyalaya, Bithoor, Kanpur were selected randomly as subject between the age group 14 to 20 years. Among them 40 subjects were taken as experimental group and 10 subjects as controlled group.
On the basis of literature available, expert’s opinion and researcher’s own understanding the following physiological variables were selected, Resting Heart Rate, Vital Capacity, Haemoglobin Percentage, Triceps girth, Suprailliac girth, Subscapular girth, Abdominal umbilicus girth, Positive Breath Holding Capacity, Negative Breath Holding Capacity and Cardio respiratory endurance.

For above physiological variables following graded exercises were taken, Jumping Jack (two counts), Jumping Jacks (four counts), Alternate Toe Touching, Sideways Lunging, Step-ups (30 seconds) Shuttle run (10x4), 50 meters run, Bent Knee Sit-ups (15x3) Forward Lunging, Trunk Rotation, Sideways Bending, Sideways Twisting (upper body, both side), Shoulder Rotation, Forward & Backward Bending, Hala Aasana and Bhujanga Aasana.

The significance of mean differences between the pre-test and post test after twelve weeks, in each of the selected physiological variable, were analyzed by t-test and the comparison of mean differences between the two groups were analyzed by Z-test. The level of significant was chosen at 0.05.
The resting heart rate was significantly reduced after twelve weeks. In experimental group due to the graded exercise programme as (t=10.849**) No change was observed in case of control group (t=1.464).

There was significant improvement in vital capacity (t=7.188**) in experimental group and no change was observed in control group (t=1.214) after twelve weeks.

After twelve weeks of graded exercise programme the haemoglobin percentage increased in experimental group. This significant change can be observed as the value of (t=10.582**) and there was no significant change in haemoglobin percentage of control group (t=1.570).

Overall significant change in body composition was observed. There was significant change in triceps girth of experimental group (t=2.214*) after twelve weeks exercise programme. No significant change was observed in control group (t=0.655)

Significant change in subscapular girth (t=14.747**) of experimental group was observed but there was no change in control group (t=1.500) after twelve weeks.
After twelve weeks of graded exercise programme significant difference was observed in abdominal umbilicus girth of experimental group \((t=5.005**)\) and there was no change in abdominal umbilicus girth of control group \((t=1.536)\).

Similarly the suprailliac girth showed significant change after twelve weeks of graded exercise programme in experimental group \((t=4.778**)\) and again there was no change in control group as \((t=1.885)\).

Therefore there were significant changes in body composition of deaf and dumb subjects, due to the gradual exercise session held at regular interval.

There was significant change in positive breath holding capacity of experimental group \((t=13.288**)\) after twelve weeks of graded exercise session while no significant difference was seen in case of control group \((t=2.058)\). The control group does not differ after twelve weeks.

There was significant change even in negative breath holding capacity in experimental group \((t=3.180**)\) after twelve weeks of graded exercise programme but the control group consisting of ten
subjects remained similar. No significant change was observed in control group (t=1.095). Surprisingly in negative breath holding capacity the control group differed significantly from experimental group (Z=3.423) before the exercise session and obviously it differed in post –test comparison (Z=4.835), too.

After twelve weeks of graded exercise programme the cardio-respiratory endurance in experimental group (t=3.335**) differed significantly while the cardio-respiratory endurance of control group does not differ significantly (t=1.393) after twelve weeks.

While in comparison of means of control and experimental group all pre-test results i.e. value of Z was not significant at 0.05 level of significance except negative breath holding capacity. But all the post-test values of Z were significant.

Conclusions

On the basis of the results obtained and within the limitations of this study, following conclusions may be drawn:

1. Adaptive changes were observed in resting heart rate, vital capacity, haemoglobin, positive breath holding capacity,
negative breath holding capacity and cardio-respiratory endurance, after twelve weeks of graded exercise programme.

2. Adaptive changes were observed in body composition which includes triceps girth, subscapular girth, abdominal umbilicus girth and subscapular girth in the study, after twelve weeks of graded exercise programme.

3. No changes were observed in control group in any of the above physiological variables. So the control group remained same even after twelve weeks of graded exercise programme.

4. In pre-test comparison, control and experimental group were similar. No significant changes were observed except in negative breath holding capacity which may be due to the limiting factor of the specific subjects.

5. In post-test comparison experimental group always differed significantly from control group after twelve weeks of exercise programme.

**Recommendations**

In light of conclusions, the following recommendations are made:-
1. The findings of present study may be utilized by the physical education teachers, coaches, instructors and physiologists, to bring about desired effects of graded exercise on selected physiological variables, chosen in this study.

2. Graded exercise may be used as a tool or device for physical educator for deriving maximum advantages so even for the specific children, like the deaf and dumb subjects taken in the study.

3. Similar exercises can be conducted on physiological variables not involved in this study.

4. Similar study can be conducted on adults and on the children below 13 years of age.

5. Similar study can be conducted over female subjects too.

6. Similar type of study can be conducted on other type of specific (handicapped) children, too.

7. Even a similar study may be employed on same selected physiological variable but with different training programme.

8. Study may also be taken of various groups of challenged children using psychological variables.