SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

Sport training is a systematic process extending over a long period. For best results the system of training has to be based and conducted on scientific facts and lines. Where it is not possible, it has to be based on the result of successful practices which has withstood the test of time. Sports science has still not been able to provide a scientific base for all the aspects and elements of training.

Training means preparing for something: an event, a season, an athletic competition, a nursing career, an operatic performance, or military combat. Much growth and change occur during training. It usually involves learning or polishing skills, enchanting attitudes, developing and strengthening organs and their functions. The training should be a continuous and regular process. Continuous and regular training leads to the improvement of performance capacity.

Running can assist people in losing weight, staying in shape and improving body composition. Running increases the metabolism. Different speeds and distances are appropriate for different individual health and fitness levels. Running can also have psychological benefits, as many participants in the sport report feeling an elated, euphoric state, often referred to as a runner’s high. Running is frequently recommended as therapy for people with clinical depression and people coping with addiction.
In sand sprinting the sand moves underfoot during the ground contact phase of the stride and so the athlete receives a greater training stimulus through the extra work that is performed on the sand. In the aquatic environment different physical conditions are present, compared with terrestrial ones, because it is known that performing the same exercise in water with the same parameters, produces a decrease in heart rate work.

Many research studies have been carried out on the individual effect of continuous running on track, sand and water. This study was designed to find out the effects of varied combinations of continuous running on different terrains on motor fitness, physiological and athletic performance variables of high school boys.

To achieve the purpose of the study, 120 high school boys from Perunthalaivar Kamarajar Government Boys High School and Sri Aravindhar higher secondary school, Muthialpet, Puducherry during the academic year 2011-12 were randomly selected as subjects. The age of the selected subjects ranged from 14 to 16 years. Only the students who were willing to participate in the experimental study were included in this study. The selected subjects were segregated into four equal groups consisting of 30 each by adopting random procedure. Experimental group I (n=30) was treated with track and sand running, experimental group II (n=30) underwent the track and water running, experimental group III (n=30) was given a combination of track, sand and water running and group IV (n=30) acted as the control group, which did not undergo any special training programme apart from their regular work.
The influence of varied combinations of continuous running on different terrains was assessed on motor fitness, physiological and athletic performance variables. The following dependent variables were assessed by using standard tests.

**Motor fitness variables**

Speed was measured by 50 Meter dash and the unit of measurement was in Seconds

Explosive Power was assessed by vertical jump and the unit of measurement was in centimeters

Leg Strength was measured by Leg dynamometer and the unit of measurement was in Kilograms

Strength endurance was assessed by Sit Ups and the unit of measurement was in Counts

**Physiological variables**

Anaerobic Power was assessed by Margaria Kalamen Test and the unit of measurement was in Kilogram/meter/seconds

$\text{Vo}_2\text{ max}$ was assessed by Bench Step and Astrand nomogram and the unit of measurement was in Liters/kg/min

Resting Pulse rate was assessed by Bio Monitor and the unit of measurement was in Beats/Minutes
Cardio respiratory endurance was measured by Cooper’s 12 minutes run and walk test and the unit of measurement was in Meter

**Athletic performance**

100 mts. run was conducted at track and the unit of measurement was in seconds

400 mts. run was conducted at track and the unit of measurement was in seconds

1500 mts. race was conducted at track and the unit of measurement was in minutes

Long Jump performance was measured at long jump pit and the unit of measurement was in meters.

The subjects were trained 6 days per week. In each training session, the training was imparted for a period between 45 and 50 minutes, which included 5 minutes warm up and 5 minutes warm down procedure, after the training programme for a period of 12 weeks. The test was conducted on all the variables before and after 12 weeks training period.

The pre and post test data on all the variables were tested for significance by applying ‘t’ test. No attempt was made to equate the group, in any manner and analysis of co variance (ANCOVA) was used to compare the effects of continuous running on different terrains on selected motor fitness, physiological and athletic performance variables of high school boys. Whenever, the obtained ‘F’ ratio was found to be significant for adjusted post - test means, scheffe’s post hoc test was
used to determine which of the paired mean difference was significant. The level of significance for the investigation was fixed at 0.05 level of confidence.

5.2 CONCLUSIONS

Based on the results of the study the following conclusions were drawn.

1. It was concluded that twelve weeks of track and sand running training produced significant changes in the motor fitness components of speed, explosive power, leg strength and strength endurance, physiological variables of resting pulse rate, \( \text{Vo}_2 \) max, anaerobic power and cardio respiratory endurance and athletic performance variables of 100mts run, 400 mts run, 1500mts race and long jump events of high school boys.

2. It was also concluded that twelve weeks of track and water running programme produced significant changes in the motor fitness, physiological and athletic performance variables of high school boys.

3. Further, it was concluded that a combination of track, sand and water running programme for a period of 12 weeks produced significant changes in the motor fitness, physiological and athletic performance variables of high school boys.

4. The combination of track, sand and water running was found to be the most appropriate training protocol to produce significant changes in motor fitness, physiological and athletic performance variables of high school boys than the other two combinations of track & sand running and track & water running.
5. Track and sand running was found to be better than track and water running to produce significant changes in motor fitness, physiological and athletic performance variables of high school boys.

5.3 RECOMMENDATIONS

The following recommendations have been made based on the results of the present study.

1. The combination of track, sand and water running is the appropriate training to produce significant changes in motor fitness, physiological and athletic performance variables of high school boys.

2. Similar study may also be conducted for girls.

3. Similar studies may be conducted for higher secondary and college boys.

4. Deep researches are to be conducted to find out the hormonal responses to continuous running on different terrains in high school boys.

5. Studies of similar nature may also be conducted by changing the dependent variables.

6. Similar study may be conducted using continuous running in various terrains like mud, red soil and grass by employing more experimental group.

7. Similar study may be conducted with a change of distance and duration in continuous running.

8. Suggested to include the running on different surfaces as a component in the training schedule while fixing the training programme for athletes.