Chapter-III

PROCEDURE / METHODOLOGY

3.1 PROCEDURE / METHODOLOGY:

Researcher has taken this study for experimental research. Firstly, researcher selected the boys of under 14 years, under 17 years, under 19 years. This selected subject are participating regularly in District, Divisional, State swimming competitions as well as juniors and sub juniors State swimming competitions. These swimmers are also participating in All India public School swimming competitions at Patiala, Haryana, RIMC Deharadun.

In each age group 40 swimmers have been taken for this study and divided randomly 20 swimmers in experimental and 20 swimmers in control group respectively. Number of swimmers for this study was 120.

Initially researcher has taken starts timing of 15 mts. Mark in seconds in i) conventional start ii) grab start iii) rear weighted track start iv) forward weighted track start, each starting technique taught to the swimmers in detail and given 15 days for practice the skill and establish the skill. Then three were starts taken in each style and average start timing was taken for calculation. Measurement of explosive strength researcher took two test, i) standing broad jump test, ii) standing vertical jump test in three attempt considered highest score as test score.
3.2 VARIABLES:

3.2.1 DEPENDENT VARIABLES:

The 15-meter starts performance was considered as the main dependent variable.

3.2.2 INDEPENDENT VARIABLE:

A training programe of the selected polymeric, weight training, own body weight exercises was independent variable. Four competitive starts, age group are also independent variable.

3.2.3 EXTRANEOUS VARIABLES

The extraneous variables like age, sex, food, exercise and environmental condition, use of field, apparatus and testers were controlled by resorting to the technique of elimination, consistency of conditions and using separate control group. The experimental and control group were treated in the same way except with respect to the independent variable (experiment).

A. Warming up:

Warm up procedure was consisting of jogging or easy running, gradual stretching, and general exercise for 8 to 10 minutes. These procedures mobilize the body for action and make it supple and free.

The training schedule prepared by the investigator was applied to the experimental group and the training was personally supervised by the investigator with the help of assistant swimming coach of the school who strictly followed the instructions of the investigator. The
training was carried out for 12 weeks. While preparing a training program the investigator follows the training principles of individuality, specificity, progressive overload, load and adaptation, warm up and cool down. The detail of the training program was given in the appendix of the thesis.

**B. Cool down:** Cool down exercises for 8 to 10 minutes.

**3.3 SELECTION OF SUBJECT:**

i) 120 swimmers selected for this study (n= 120).

ii) Subject is age group swimmers.

iii) 40 swimmers each in a)Under 14 years b) under 17 years c) under 19 years.

iv) Twenty swimmers in experimental group and 20 swimmers in control group selected randomly.

v) This selected subject is participating regularly in District, Divisional, State swimming competitions as well as juniors and sub juniors State swimming competitions. These swimmers are also participating in All India Public School swimming competitions at Patitila, Hariyana, RIMC, Dehradun.

vi) Subject are form Pravara Public School, Pravara Central School and Padmsree Vitthalrao Vikhe Patil Sainik School, Pravaranagar.

vii) Subject is only male swimmers.
Table 3.1

Blue print of subject distribution

<table>
<thead>
<tr>
<th>Sr.No.</th>
<th>Group</th>
<th>Number of Swimmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Under 14 years experimental group</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Under 14 years control group</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Under 17 years experimental group</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>Under 17 years control group</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>Under 19 years experimental group</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td>Under 19 years control group</td>
<td>20</td>
</tr>
</tbody>
</table>

As none of the subject had any health complaint, all of them were assumed clinically fit.

3.4 METHOD OF STUDY:

The research intends to undertake this project though experimental research which provides a systematic method as the most scientific of all the approaches used, the researcher attempts to manipulate the influence of variable in order to arrive at cause, effect relationship, rather than rely upon existing date, examples of such approaches include the use of both controlled laboratory and field investigations.

For the study experimental method was used. All 120 subject were divided randomly into two equal groups experimental group – N= 20, control group – N= 20.
3.5 PROCEDURE:

Training delimited to lower extremity strength exercises. In plyometric training program i) tuck jump, ii) both leg back jump, iii) high jump, iv) half squats, v) full squats, vi) China’s walk, vii) frog jump, viii) starting jump, ix) seating long jump, x) skipping, xi) jump with zig zag, xii) steeping exercises, xiii) left leg and right leg steeping, xiv) hooping, xv) exercises with bar of weight, xvi) Weight training (with lightweight).

According to standard training method experimental group, received training and control group done regular practice of starting style. However, all the subject participating there regular School activity as per daily timetable of the School, Training program conducted 12 weeks, Monday to Saturday 4.00 P.M. to 5.30 P.M. Total time of training daily 90 min. Sunday was a given recovery day. Loading given two high loads, 3 medium loads, and one low load. Loading procedure counted as 160 beat/ minutes high load, 140 beats/minutes medium load, 120 beats / minutes low load.

The design of the experiment was repeated test randomly group design. And has been planned in two phases.

Phase – I : pre test.

Phase – II : post test.
3.6 ADMINISTRATION OF TEST:

Starting procedure for starts; starting procedure followed competition protocol. The subject was instructed according to protocol of competitions than “take your mark” command given, once subject was observed to be stationary the starting signal was activated. On activity of the starting signal the subject executed a race start swimming up to a 15-meter mark.

Scoring: The timekeeper records the timing to cover the 15-meter distance to one hundred of a second.

3.7 COLLECTION OF DATA:

3.7.1 VERTICAL JUMP TEST:

Vertical jump performance was measured to assess the explosive strength of the subject’s lower body. Subjects performed three trails and the highest of these trials was recorded for calculation.

3.7.2 Standing broad jump:

This test measures the strength of legs in horizontal distance and above test used by researcher before the training program and after the training program.

Equipment: stopwatch, whistle, meter scale lime powder.

In each age group, 40 swimmers were taken for this study and divided randomly 20 swimmers in experimental and 20 swimmers in control group respectively. Number of swimmers for this study was 120.
Initially researcher has taken starts timing of 15 meters. Mark in seconds in i) conventional start ii) grab start iii) rear weighted track start iv) forward weighted track start, each starting technique thought to the swimmers in detail and given 15 days for practice the skill and establish the skill. Then three starts taken in each style and medal start timing taken for calculation. Measurement of explosive strength researcher has taken two test, i) standing broad jump test, ii) standing vertical jump test in three attempt considered highest score as test score.

3.8 Statistical Analysis:

The data obtained has been statistically analyzed by mean and standard error, standard deviation and T-test. Method for obtaining useful conclusion. Data compares with pre test and post tests. All result, analysis and inter petition given in Chapter - 4