METHODOLOGY

In this chapter the procedure adapted for the selection of subjects, selection of variables, criterion measures, reliability of data, administration of test, research design of the study and the statistical techniques used for analyzing the data have been explained in detail.

Selection of Subjects

Three hundred male and female swimmers from various teams who had participated at the State and National level swimming competition are selected as subjects for this study. The subject age is ranged between 20 to 25 years.

Selection of Variables

The research scholar gleaned through the scientific literature pertaining to the cross sectional analysis of anthropometric, physiological and psychological variables from different library sources available at the library of the Lakshmibai National University of Physical Education and Jiwaji University, Gwalior, Madhya Pradesh, India and also consulted experts in these areas to select the anthropometric, physiological and psychological variables with regard to the purpose of the study. Along with the said literature and expert opinion, the administrative feasibility in terms of availability of instruments and expertise for measuring and recording of data was also given due consideration while selecting anthropometric, physiological and psychological variables.

Based on the above mentioned criteria the following variables are selected:

Anthropometric Variables

- Arm length
- Leg Length
- Height (Sitting and Standing)
- Weight
- Thigh Girth
- Calf Girth
- Foot Length

Physiological Variables

- Resting Heart Rate
- Blood Pressure (Systolic and Diastolic)
- Vital Capacity
- Body Composition
- Peak Flow Rate
- Respiratory Rate
- Breath Holding Capacity

Psychological Variables

- Motivation
- Sports Competition Anxiety
- Personality

Criterion Measures

The criterion measures chosen for testing of the hypothesis in this study are as follows:

- **Arm Length:** It will record correct to the nearest half centimeters with the help of flexible steel tape.
- **Leg Length:** It will record correct to the nearest half centimeters with the help of flexible steel tape.
- **Standing Height:** It will record to the nearest half centimeter, with the help of wall scale.
- **Sitting Height:** It will record to the nearest half centimeter, with the help of table scale.
- **Weight:** It will record correct to nearest half kilograms with the help of the weighing machine.
- **Thigh Girth:** It will record correct to the nearest half centimeter with the help of flexible steel tape.
- **Calf Girth:** It will record correct to the nearest half centimeter, with the help of flexible steel tape.
- **Foot Length:** It will record correct to the nearest half centimeter, with the help of flexible steel tape.
- **Resting Heart Rate:** Number of heart beats per minute during resting condition will take as resting heart rate.

- **Blood Pressure:** It will record (mm. of hg) in terms of the pressure exerted on the walls of the arteries during systolic and diastolic phase with the help of sphygmomanometer and stethoscope.
- **Vital Capacity:** It will record with help of Spiro meter nearest to one length of a liter.
- **Body Composition:** It will measure with help of Skin fold caliper and it will record in percentage.
- **Peak Flow Rate:** It will record in liters per minutes with the help of peak flow meter.
- **Respiratory Rate:** It will record in total count of respiratory movement counts per minute.
- **Breath Holding Capacity:** It will measure by manual method using a stopwatch and the score will record in second.
- **Motivation:** It will measure by Motivation Analysis Test.
- **Sports Competition Anxiety:** It will measure by Sports Competition Anxiety Test (SCAT).
- **Personality:** It will measure by Eysenck's Personality Questionnaire.

Statistical Technique

1. To characterize Indian swimmers by their selected anthropometric, physiological and psychological variables to standard human performance measures, descriptive statistics will employ.

2. To predict the Indian swimmers in relation to selected anthropometric, physiological and psychological variables, multiple co-relation and regression analysis will use at 0.05 level of significance.