Chapter III

PROCEDURE

In this chapter, the selection of subjects, selection of variables, Selection of test & criterion measures, Description of Exercise Therapy, Administration of test, Procedure for administration of test, Collection of data, Reliability of data, and statistical procedure employed for analyzing the data are described.

Selection of Subjects

The primary purpose of the study was to experiment with well planned, systematically developed comprehensive alternative exercise program on drug addicts to investigate its role and effect in terms of rehabilitation efficacy.

Hence a place to conduct the experiment and a suitable number of subjects availability was prime consideration. Rehabilitation centre that could co-operate in this regard became an ideal and natural choice.
Scholar happened to work as lecturer in Visva-Bharati, Santiniketan, in the department of physical education. Elmhurst Institute of Community Study situated within the premises of Visva-Bharati campus is a renowned and prestigious Institute. And, the Institute happened to regularly conducted de-addiction and rehabilitation programme since its inception in the year 1961. The Institute had been associated with various rehabilitation programs.

Hence, choice of this centre to conduct the research project became most appropriate in terms of subject availability and direct program supervision. More so because the Institute Authority readily agreed to cooperate in every aspects.

For the purpose of the study all in total 40 drug addicts were selected. The selected addicts were substance abuser of drugs namely

1. Heroin

2. Brown sugar

3. Multi drug

4. Dendricts(nitroxs)
5. Corax

6. Bentium- 5

The subjects were from wide range of age group i.e. 18-45 years. Further the half of the subjects was from middle income group. Quite a significant number of subjects were highly qualified and from high income group. All the selected subjects were with extreme symptom of withdrawal and drug dependence.

The 40 subject selected were grouped in to two as follows randomly

Experimental group: 20

Control group: 20

Selection of Variables

Research scholar intended to investigate rehabilitative efficacy of Comprehensive Alternative Exercise Programs and set rehabilitation in term of Health status, Fitness, Psychological well being. Hence, variables
or parameter which is indicative of this are selected for the study. They are as follows:-

a. Psychological Variables
   i. Self-Confidence
   ii. Personality Profile
   iii. Attitude

b. Physical Variables
   i. Flexibility
   ii. Cardio-respiratory Endurance
   iii. Explosive Leg Strength
   iv. Speed

c. Physiological Variables
   i. Heart Rate
   ii. Blood Pressure

Selection of Test & Criterion Measures

The following tests & criterion measures were selected to collect the data on selected variables.
<table>
<thead>
<tr>
<th>Variables</th>
<th>Test</th>
<th>Criterion Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Heart Rate</td>
<td>Manual test</td>
<td>Beats per minute</td>
</tr>
<tr>
<td>2. Blood Pressure</td>
<td>Manual with Sphygmomanometer and Stethoscope</td>
<td>mmHg</td>
</tr>
<tr>
<td>3. Cardio-respiratory Endurance</td>
<td>Copper’s 12-minute Run/Walk test</td>
<td>Distance cover in meters</td>
</tr>
<tr>
<td>4. Self Confidence</td>
<td>Rekha Agnihotry’s Self Confidence Inventory</td>
<td>Scores on Self Confidence Inventory (ASCI).(^1)</td>
</tr>
<tr>
<td>5. Personality</td>
<td>Cattle’s 16 P.F.</td>
<td>Scores on 16 P.F. Personality Traits</td>
</tr>
<tr>
<td>6. Attitude</td>
<td>Parasar’s Optimistic Pessimistic Attitude Scale</td>
<td>Scores on Parasar’s Optimistic Pessimistic Attitude Scale (OPAS).(^2)</td>
</tr>
<tr>
<td>7. Speed</td>
<td>50meter dash</td>
<td>Meter per seconds.</td>
</tr>
<tr>
<td>8. Flexibility</td>
<td>Sit and Reach test</td>
<td>Measured in centimeters</td>
</tr>
<tr>
<td>9. Explosive Leg Strength</td>
<td>Standing Broad Jump</td>
<td>Measured in meters</td>
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</tbody>
</table>


Description of the Comprehensive Alternative Exercise Therapy

(Experimental Treatment)

The comprehensive alternative exercise therapy was developed after extensive deliberation, pre experiment trails and consideration to exercise programming guidelines as suggested by Dr. Larry Smith chiropractor.

Dr. Larry Smith is renowned sports scientist and have extensively worked in the area of programming of exercises for every kind of requirements, that be high level fitness for sports specific group, fitness for average population, fitness for all kinds specific rehabilitation requirements etc.

He had suggested a programming protocol to be followed systemically in order to prepare an effective exercise programs for rehabilitation.

This programming protocol is strictly followed while planning the comprehensive alternative exercise therapy program.

Individualized consideration was made priority, and hence individual screening prior to program planning was made to ascertain followings:-

- Is the individual capable and willing to begin a fitness program?
• What are the physical limitations of individuals?
• Current health status.
• What are supposedly long term goals of rehabilitation?

Once the status of all above was ascertained the second stage was followed.

• Immediate training task and daily goal and objective are set.
• Best forms of exercises were identified considering physical and health status etc.

Elmhirst Institute of Community Study had its own rehabilitation programs and it has allowed to experiment in addition to their program. Subjects were made available at scholar disposal for approximately two hours daily- one hour in the morning and one hour in the evening.

Keeping that fact about their daily schedule and component of center’s programs in mind, scholar had to chalk out the comprehensive alternative exercise programs.

The control group exclusively participated in center’s program while experimental group was administered the Comprehensive Alternative Exercise Program in addition to center’s programs.

The preliminary screening medical checkup was conducted.
* A basic training zone as ideal heart rate to be achieved is also decided for experimental group considering physical limitations for beginning and subsequent stages.

Hence the following contents were formulated by the Scholar to experiment on above selected Physical, Physiological & Psychological Variables

1. Yoga

2. Meditation

3. Physical Exercise (Calisthenics)

4. Recreational Games

**Administration of the Alternative Exercise Therapy Rehabilitation Program**

An utmost care, precaution and importance was given to administration of the rehabilitation program. The experimental rehabilitation program was conducted within the campus of Elmhirst Institute of Community Study. Prior to conduct of experimental rehabilitation programs Pre test in all the criterion variables on which the
effect of rehabilitation program is to seen are tested for control and experimental group.

Control group were exclusively administered the centre’s program while experimental group was exposed to Alternative Exercise Rehabilitation Program in addition to regular centre’s program. The experimental rehabilitation program was conducted for six weeks.

A training protocol for Periodic load assessment and evaluation, subjective intensity evaluation by observing facial expression and breathing frequency was ascertained for every subject.

While administering the program care was taken to see that every subjects perform the work load comfortably during initial 10 days.

After every 10 days load parameters were increased progressively 5-10%.

The Comprehensive Alternative Exercise Therapy Program was prepared on 5 days a week schedule
The Program structure was planned as follows

<table>
<thead>
<tr>
<th>Days</th>
<th>Morning session (7.30a m-8.30 a m)</th>
<th>Evening session (5.30p m-6.30p m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>a. Brisk Walking</td>
<td>a. Variable pace jogs</td>
</tr>
<tr>
<td></td>
<td>b. stretching exercise</td>
<td>b. recreational games</td>
</tr>
<tr>
<td></td>
<td>c. Surya Namaskar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d. Yogic Asanas (5)</td>
<td></td>
</tr>
<tr>
<td>Tuesday</td>
<td>a. Light Calisthenics</td>
<td>a. Short distance relay</td>
</tr>
<tr>
<td></td>
<td>b. stretching exercises</td>
<td>( low intensity)</td>
</tr>
<tr>
<td></td>
<td>c. Surya Namaskar &amp; Kapal Bhatti</td>
<td>b. recreational games</td>
</tr>
<tr>
<td>Wednesday</td>
<td>a. Aerobics (mild intensity)</td>
<td>a. Calisthenics with variations</td>
</tr>
<tr>
<td></td>
<td>b. Surya Namaskar and Pranayam</td>
<td>b. recreational games</td>
</tr>
<tr>
<td>Thursday</td>
<td>a. Meditation</td>
<td>a. Variable pace jogs</td>
</tr>
<tr>
<td></td>
<td>b. Surya Namaskar</td>
<td>b. recreational games</td>
</tr>
<tr>
<td></td>
<td>c. Yogic Asanas (5)</td>
<td></td>
</tr>
<tr>
<td>Friday</td>
<td>a. Light Calisthenics</td>
<td>a. Short distance relay</td>
</tr>
<tr>
<td></td>
<td>b. stretching exercises</td>
<td>( low intensity)</td>
</tr>
<tr>
<td></td>
<td>c. Surya Namaskar &amp; Kapal Bhatti</td>
<td>b. recreational game</td>
</tr>
</tbody>
</table>
Load intensity and volumes were kept widely flexible so that it remains within the range of every subject's accomplishment.

And at the end of every ten days load effect and recovery pattern for all the subjects were evaluated and based on that five to ten percent increase in intensity was made. Same schedule was followed for the whole duration of rehabilitation programs with periodic and progressive increases on load parameters.

**Procedure for Administration of Test**

The scholar personally visited various selected rehabilitation centers at North-East region particularly at Dimapur (Nagaland) and West Bengal. After understanding the subjects' feasibility and availability at the Elmhirst Institute of Community Study at Santiniketan, scholar selected the same for his collection of data. Before administering the Comprehensive Alternative Exercise Rehabilitation Program, all the selected subjects taken up were check up in terms of their health status & fitness level. Pre test were conducted on experimental and Control group.
After the 6 weeks experiment on the Experimental group the post test was conducted to see the effect of Comprehensive Alternative Exercise Therapy Program. Post test was also conducted for control group which were exposed to center’s existing normal rehabilitation program.

**Description of Tests**

**Resting Heart Rate**

**Objective:** To measure the resting heart rate.

**Equipment:** Stopwatch.

**Procedure:** The resting heart rate of each of the subject was recorded between 6.00 am to 8.00 am. Before recording the resting heart rate the subject were instructed to remain lying on their beds. To record the heart rate the pulse was palpated at the radial artery for one full minute.

**Score:** The score was recorded in of number of pulse beats per minute.
**Blood Pressure**

**Objective:** To measure the Systolic and Diastolic pressure.

**Equipment:** Sphygmomanometer, Stethoscope.

**Procedure:** Each subject was asked to sit relax on a chair and the pressure cuff of the sphygmomanometer was wrapped around the left arm joint above the elbow. The elbow was placed at such a position that the pressure cuff was at the same height as the heart. Hands were relaxed with the palm facing upwards. The cuff is connected with pressured pump and manometer. After closing the outlet valve of the pressure pump, the pressure in the inflatable rubber bag is rapidly raised to 180 mmHg by pumping which was sufficient to sheet off the practical artery which was assessed and gradually radial pulse disappeared. Keeping the “Chest Piece” of the stethoscope near the brachial artery was monitor the stand of palpation and listening to the sound through the ear piece of the stethoscope as the pressure near the artery was being manipulated. The
SCHOLAR MEASURING THE BLOOD PRESSURE OF THE DRUG ADDICT
pressure was gradually lowered by opening the valve. As soon as the pressure in the cuff falls just below the systolic pressure it allows passing the small amount of blood through the compressed artery into the distal segment. This, thereby produced a clean sharp sound and the pressure shown in the dial is noted which denotes the measure of systolic blood pressure. At the cuff the pressure is lowered still further which allowed more blood flow through due to rebound relaxation of the arterial vessels and was indicated by wonder sound. The pressure at which the sound was muffled by manipulation the pressure pump was read on the manometer dial. This denotes the measure of the diastolic blood pressure.

12 Minute Run/Walk

Objective: To measure the Cardio-respiratory endurance.

Equipment: Stopwatch, Flags, Track, (200m)
Procedure: Cooper’s 12 minute run/walk test was used to measure the cardio-respiratory endurance of the subject. For this, 200 meter track was used and marked into 10 divisions where in each division the flags were placed. The subjects may be asked to run in a group or may be divided into groups. The subjects running in a track is being observed by the spotters or partners who maintained and noted down the number of each lap completed till the stipulated time is over. When 11 minutes have elapsed, the tester calls out or give signal the time left to run. At the end of the 12 minutes the tester blows the whistle which is an indicator that the time is over.

Score: The score in meter was determined by multiplying the number of completed laps plus the distance of number of segment or flags crossed or passed in an incomplete or last lap.\(^3\)

\(^3\) Johnson and Nelson, “Practical Measurement for Evaluation in Physical Education,” (Delhi: Surjeet Publication, 3\(^{rd}\) ed.) p.143-144.
50 Meter Dash Run

Objective: To measure the speed.

Facilities & Equipment:

200m Track, starting line and finish line, stopwatches, clapper.

Procedure: After a short warm up period the subjects were asked to take the position behind the starting line. The subjects were made to run 2 at time to get better result. To start the race the starter users the command “Ready Go” or “Clap” which may be accompanied by a downward sweeping of the arm as a signal to time keeper. The subject runs across the finish line as faster as possible. Only one trial was permitted.

Score: The score was elapsed time to the nearest tenth (10th) of the second between the starting signal and the moment they crosses the finish line.4

Sit and Reach Test

Objective: To measure the flexibility of back and leg (hamstring) muscle.

Equipment: Sit and Reach Testing Box.

Procedure: The subjects were asked to remove their shoes and place their feet against the testing box without bending their knees. The subjects were then asked to place their one hand on top of the other so that the middle finger of both hands comers together at the same length. The tester kept his hand on the knees of the subject to keep their knees straight, not allowing any bending of the knees. At the same time the subjects were instructed to lean forward and place their hands over the measuring scales lying on top of the box. Then, they were asked to slide his hand along the measuring scale as far as possible without bouncing and were asked to hold the farthest position for at least one second.
Score: Each subject was given 3 trials the highest or best score, nearest to an inch was recorded to obtain the score of flexibility.

*Standing Broad Jump*

**Objective:** To measure the explosive leg strength.

**Equipment:** Measuring Tap & Play ground.

**Procedure:** The subject was asked to stand behind the marked line with the swing of the hand and slightly bending knees and without taking any double jump, the subject was asked to jump in forward direction. Three trials were permitted and out of three best jumps was recorded.

**Score:** The score was measured by determining the best trial in meters.

*Agnihotry’s Self Confidence Inventory (ASCI), Cattle’s 16 P.F. & Parasar’s Optimistic Pessimistic Attitude Scale*

**Objective:** To measure the self confidence, Attitude and personality.
ADMINISTRATION OF QUESTIONNAIRE

Data for this study was taken at the Elmhirst Institute of Community Study, the de-addiction and rehabilitation centre situated in Santoktan Balipur (W.B.) when the subjects were having the enough time to spare for prescribing the exercise. All precise instructions needed for the study was given to the subjects before the administration of each test.
Equipment: Questionnaire, Pen or Pencil.

Procedure: Before distributing the questionnaire to the subjects, about the purpose and technique of attempting and the questionnaire was explained and instructed. After receiving the questionnaire every subject had gone through the questions and options answers given and attempted accordingly. The test contains 40 items in Parasar’s Optimistic Pessimistic Attitude Scale, 187 items in Cattle’s 16 P.F. and 56 items in Agnihotry’s Self Confidence Inventory.

Score: The score was recorded as per the norms.

Collection of Data

Data for this study was taken at the Elmhirst Institute of Community Study, the de-addiction and rehabilitation centre situated at Santiketan Bolpur (W.B.) when the subjects were having the enough time to spare for prescribing the exercise. All precise instructions needed for this study was given to the subjects before the administration of each test.
PRACTICE SESSION OF PHYSICAL EXERCISES OF DRUG ADDICTS
Reliability of Data

The reliability of data was established by using teacher’s and scholar’s competency.

Statistical Procedure

For analysis of data ‘t’ test was used to find out the effect of Comprehensive Exercise Program on Physical, Physiological & Psychological Variables as well as regular program of the centre on physical, physiological and psychological variables as rehabilitative effect.

Further to find out efficacy of comprehensive exercise program over regular program of the Elmhirst Institute of community study, de addiction centre, analysis of co variance was used. The level of significance was kept at 0.05.
PRACTICE SESSION OF STRETCHING EXERCISES OF DRUG ADDICTS