METHODOLOGY

In this chapter, researcher has mentioned about design, sample, tests & tools, procedure, and scoring / statistical analysis accordingly, which is given as under:Sports persons of three disciplines were considered as population for the present study. These three sports disciplines were Archery, Boxing, and Judo.

Selection of Subjects

The purpose of this study was to find out the effect of The combination of biofeedback and autogenic training on performance enhancement of Indian sport person. Samples were consisted of 60 sports persons of national level includes 20 hockey, 20 handball and 20 football players and 60 control group (20 hockey, 20 handball and 20 football players for control group). These sports persons were belong to their respective games in Gujarat State. They were selected for national camps in their respective games in the year 2011-12. For the present investigation researcher has selected them for experimentation of the study. The inclusion and exclusion criteria was framed with the central aim of getting homogeneous, comparable and well defined sample. The subjects were only male and there age was ranging from 17 to 22 years. The subjects were must be in the Junior/Senior team of their respective game. Control group was not provided any biofeedback and autogenic training.

Selection of Variables

For the present study, types of training was the independent variable. There were two levels of this independent variable given as under.
1. Biofeedback combined with Autogenic Training
2. No Treatment / Training

For the present study, dependent variables reaction ability(simple visual reaction time, choice visual reaction time, simple audio reaction time, choice audio reaction time), co – ordination (eye- hand co ordination time, eye – hand co ordination error), concentration (Hand steadiness), Stress (GSR basal Value, GSR relax Value) and heart rate variables only were measured.
Criterion Measures

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Items</th>
<th>Tests/Tools</th>
<th>Measure standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reaction Ability</td>
<td>Audio- Visual Reaction Timer</td>
<td>Score</td>
</tr>
<tr>
<td>2</td>
<td>Co-ordination</td>
<td>Eye-Hand Co ordination Apparatus</td>
<td>Seconds And No. Of Errors</td>
</tr>
<tr>
<td>3</td>
<td>Concentration</td>
<td>Stabilometer</td>
<td>Score</td>
</tr>
<tr>
<td>4</td>
<td>Anxiety</td>
<td>GSR Biofeedback</td>
<td>Kilo Ohms</td>
</tr>
<tr>
<td>5</td>
<td>Heart Rate</td>
<td>Pulse Monitor</td>
<td>score</td>
</tr>
</tbody>
</table>

Reliability of Tests and competency of Tester
With standard means and efficiency of the tester, the information gathered was authentic and credible.

Reliability of Information
The reliability of the information was determined in view of the reliability of the equipments and the expertise of the individual who took the test.

Instrumental Reliability
In this study, in order to collect the data means such as Stop-watch, Steel tap, Audio – visual reaction timer, Eye – hand co ordination Apparatus, Stabilometer, Galvanic Skin resistance bio feedback , pulse monitor etc. were used. The accuracy of these instruments was ensure by the suppliers. thus, these were considered reliable enough for the purpose of this study.

Experimental Design
For this study, researcher want to give new therapeutic model in the field of sports, by which a player can improve his reaction time, concentration, stress. Researcher want to enhance the performance of sports persons in three sports disciplines i.e. Hockey, Handball & Football. Researcher want to measure psycho physiological variables of players, by which researcher can test the effectiveness of Biofeedback and autogenic training on player's performance.
Biofeedback is the combination of Body, Mind and Apparatus. Autogenic training helps in relaxation program. Researcher has combined Biofeedback and autogenic training for performance enhancement. For this study researcher has provide Biofeedback training to sports persons. Galvanic skin resistance Biofeedback was provided to the players to reduce anxiety & stress. Biofeedback training is a clinical therapy to reduce anxiety, stress, hyperactivity, various pains in body etc..... So, researcher has decided to apply Biofeedback therapy in the field of sports.

PILOT DESIGN

Ten samples were selected for experimental group and Ten samples for control group for each sports discipline. Pre-testing, Interval testing (I), Interval testing (II), Post-testing were conducted on both the groups. Only experimental group was provided Biofeedback and autogenic training whereas, control group was not provided any training in all three sports disciplines.

In the present research work, investigator has tried to apply these following components in such a way to obtain the maximum advantage possible.

In this study sex, standard, age, sports discipline were controlled. In both the groups all sportspersons were male. All the sports persons from both the groups were of national level, so the standard was same. Age group of both the group was same. Samples of both the group were from respective sports disciplines i.e. Hockey, Handball and Football. So the samples selected for experimental group and comparative match group were same in sex, standard, age and sports discipline.

Training Programme

For the present study, types of training was the independent variable, there were two levels of this independent variable i.e, (1) Biofeedback combined with autogenic training, (2) No training. For the present study, Dependent variables which are the parameters of performance are (1) Reaction ability, (2) Coordination, (3) Concentration, (4) Anxiety Stress (5) Heart rate. So, researcher has prepared pilot program to test the effect of independent variable on dependent variables. Following design for piloting was implemented.
<table>
<thead>
<tr>
<th></th>
<th>Hockey</th>
<th>Handball</th>
<th>Football</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental group</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Control group</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>120</td>
</tr>
</tbody>
</table>

In this program, researcher had provided 2 sessions per day. Each Session was of 40 minutes for 5 days in which Biofeedback along with autogenic training was involved. In morning session heaviness exercise was given and in evening session warmness exercise was given to the subjects. On 6th Day dependant variables were tested. Again, Biofeedback along with autogenic training was provided for another 5 days. In morning session heaviness exercise was given and in evening session warmness exercise was given to the subjects. On 12th Day, again dependant variables were tested. Again, Biofeedback along with autogenic training was provided for another 5 days. In morning session heaviness exercise was given and in evening session warmness exercise was given to the subjects. After completed the training programme the Post Testing was done on dependant variables.

Then researcher induced Autogenic Training ie., Heaviness Exercise. Details of day to day program are given below:

**On 1st day**, Left Arm was involved to perform Heaviness Exercise; Simultaneously G.S.R. Biofeedback was also induced along with Autogenic Training. Duration of Autogenic Training + Galvanic Skin Resistance Biofeedback is 20 minutes. At last researcher asked subjects for General Relaxation Training without any instructions for 10 minutes. Whole training session was of 40 minutes duration for every day.

**On 2nd day**, instead of left arm, the same procedure was conducted on Right arm with Galvanic Skin Resistance Biofeedback Training. Procedure & duration remains same.
On 3rd day, researcher had shifted it to Left Leg with Heaviness Exercise Autogenic Training + Galvanic Skin Resistance Biofeedback Training. Procedure & duration remains same.

On 4th day, instead of Left Leg, the same procedure was conducted on Right Leg with Heaviness Exercise Autogenic Training + Galvanic Skin Resistance Biofeedback Training. Procedure & duration remains same.

On 5th day, whole body was involved along with Heaviness Exercise Autogenic Training and Biofeedback Training. Subject has to feel his whole body heavy according to the procedure. Procedure & duration remains same.

On 6th day, Researcher had induced autogenic training that is, Warmness Exercise, Left Arm was involved to perform Warmness Exercise.

On 7th day, instead of Left Arm, the same procedure was conducted on Right Arm along with Biofeedback Training.

On 8th day, Researcher had shifted it to Left Leg. Subject has to feel his Left Leg Warm. Procedure & duration remains same.

On 9th day, instead of Left Leg, the same procedure was conducted on Right Leg with Biofeedback Training. Procedure & duration remains same.

On 10th day, whole body was involved to perform Warmness Exercise. Subject has to feel his whole body Warm along with Biofeedback Training. Procedure & duration remained same.

On 11th day, Left Arm was involved to perform Heaviness and Warmness both exercises along with Biofeedback Training. Researcher gave clear instruction about Heaviness and Warmness both exercises along with Galvanic Skin. Resistance Biofeedback and repeat the statement "Your Left Arm is heavy". "Your Left Arm is Warm", and then "Your Left Arm is heavy & Warm" respectively. Procedure and duration remained same.

On 12th day, instead of Left Arm, the same procedure was conducted on Right Arm. Heaviness and Warmness both exercises were introduced on Right arm along with Biofeedback Training. Procedure & duration remains same.

On 13th day, Researcher had shifted it to Left Leg. Subjects has to feel Left Leg Heavy and Warm along with Biofeedback Training. Procedure & duration remained same.
On 14th day, instead of Left Leg, the same procedure was conducted on Right Leg. Heaviness and Warmness both exercises were introduced on Right Leg along with Biofeedback Training. Procedure and duration remained same.

On 15th day, Whole Body was involved to perform Heaviness and Warmness both exercises, Subjects has to feel his whole body heavy and warm along with Biofeedback Training. Procedure and duration remained same. This was the last day of Training for Experimental Group.

### SCHEDULE OF TRAINING PROGRAMME

<table>
<thead>
<tr>
<th>DAY</th>
<th>DATE</th>
<th>TRAINING SESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>01.</td>
<td></td>
<td>LEFT ARM (HEAVINESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>02.</td>
<td></td>
<td>RIGHT ARM (HEAVINESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>03.</td>
<td></td>
<td>LEFT LEG (HEAVINESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>04.</td>
<td></td>
<td>RIGHT LEG (HEAVINESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>05.</td>
<td></td>
<td>WHOLE BODY (HEAVINESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>06.</td>
<td></td>
<td>LEFT ARM (WARMNESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>07.</td>
<td></td>
<td>RIGHT ARM (WARMNESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>08.</td>
<td></td>
<td>LEFT LEG (WARMNESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>09.</td>
<td></td>
<td>RIGHT LEG (WARMNESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>10.</td>
<td></td>
<td>WHOLE BODY (WARMNESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>11.</td>
<td></td>
<td>LEFT ARM (HEAVINESS EXERCISE) + (WARMNESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
<tr>
<td>12.</td>
<td></td>
<td>RIGHT ARM (HEAVINESS EXERCISE) + (WARMNESS EXERCISE) + BIOFEEDBACK TRAINING</td>
</tr>
</tbody>
</table>
13.  LEFT LEG (HEAVINESS EXERCISE)+(WARMNESS EXERCISE) + BIOFEEDBACK TRAINING

14.  RIGHT LEG (HEAVINESS EXERCISE)+(WARMNESS EXERCISE) + BIOFEEDBACK TRAINING

15.  WHOLE BODY (HEAVINESS EXERCISE)+(WARMNESS EXERCISE) + BIOFEEDBACK TRAINING

1ST DAY TRAINING SESSION

☐  BODY PART :  LEFT ARM (L.A.)
☐  THERAPY :  Autogenic Training / Heaviness Exercise
☐  TRAINING :  Galvanic Skin Resistance Biofeedback
☐  DURATION :  40 Minutes

(I)  GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II)  AUTOGENIC TRAINING [HEAVINESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK  (20 MINUTES)

Subject has to feel Heavy his particular body part. Researcher will give clear instruction about Heaviness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Left Arm is Heavy" with good appealing voice accordingly.
Galvanic Skin Resistance Biofeedback: Researcher will,

1. Ask Subject to clean their fingers.
3. Put electrodes to the tips of fingers first on himself and then on subjects on the tips of any two fingers.
5. Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

2ND DAY TRAINING SESSION

- **BODY PART**: RIGHT ARM (R.A.)
- **THERAPY**: Autogenic Training / Heaviness Exercise
- **TRAINING**: Galvanic Skin Resistance Biofeedback
- **DURATION**: 40 Minutes

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

1. Psychological Preparation of Subject.
2. Training Oneself.
4. Shifts in Thought Process
5. Whole Body Relaxed

(II) AUTGENIC TRAINING [HEAVINESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)
Subject has to feel Heavy his particular body part. Researcher will give clear instruction about Heaviness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Right Arm is Heavy" with good appealing voice accordingly.

☐ GALVANIC SKIN RESISTANCE BIOFEEDBACK :
RESEARCHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

<table>
<thead>
<tr>
<th>3RD DAY TRAINING SESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BODY PART : LEFT LEG (L.L.)</td>
</tr>
<tr>
<td>THERAPY : Autogenic Training / Heaviness Exercise</td>
</tr>
<tr>
<td>TRAINING : Galvanic Skin Resistance Biofeedback</td>
</tr>
<tr>
<td>DURATION : 40 Minutes</td>
</tr>
</tbody>
</table>

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING [HEAVINESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Heavy his particular body part. Researcher will give clear instruction about Heaviness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Left Leg is Heavy" with good appealing voice accordingly.

☐ GALVANIC SKIN RESISTANCE BIOFEEDBACK:

RESRACHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

4TH DAY TRAINING SESSION

☐ BODY PART : Right Leg (R. L.)
☐ THERAPY : Autogenic Training / Heaviness Exercise
☐ TRAINING : Galvanic Skin Resistance Biofeedback
☐ DURATION : 40 Minutes
(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

1. Psychological Preparation of Subject.
2. Training Oneself.
4. Shifts in Thought Process
5. Whole Body Relaxed

(II) AUTOGENIC TRAINING [HEAVINESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Heavy his particular body part. Researcher will give clear instruction about Heaviness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Right Leg is Heavy" with good appealing voice accordingly.

- GALVANIC SKIN RESISTANCE BIOFEEDBACK : RESEARCHER WILL,
  1. Ask Subject to clean their fingers.
  3. Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
  5. Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

5TH DAY TRAINING SESSION
BODY PART : WHOLE BODY

THERAPY : Autogenic Training / Heaviness Exercise

TRAINING : Galvanic Skin Resistance Biofeedback

DURATION : 40 Minutes

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING [HEAVINESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Heavy his particular body part. Researcher will give clear instruction about Heaviness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Whole Body is Heavy" with good appealing voice accordingly.

GALVANIC SKIN RESISTANCE BIOFEEDBACK :

RESRACHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

6TH DAY TRAINING SESSION

☐ BODY PART : LEFT ARM (L.A.)
☐ THERAPY : Autogenic Training/Warmness Exercise
☐ TRAINING : Galvanic Skin Resistance Biofeedback
☐ DURATION : 40 Minutes

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING [WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Warm his particular body part. Researcher will give clear instruction about Warmness Exercise & Galvanic Skin Resistance
Biofeedback while making a statement "Your Left Arm is Warm" with good appealing voice accordingly.

☐ **GALVANIC SKIN RESISTANCE BIOFEEDBACK :**

RESRACHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

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**7TH DAY TRAINING SESSION**

☐ **BODY PART**  :  RIGHT ARM (R.A.)
☐ **THERAPY**  :  Autogenic Training/Warmness Exercise
☐ **TRAINING**  :  Galvanic Skin Resistance Biofeedback
☐ **DURATION**  :  40 Minutes

(I) **GENERAL RELAXATION TRAINING (10 MINUTES)**

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) **AUTOGENIC TRAINING [WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)**

Subject has to feel Warm his particular body part. Researcher will give clear instruction about Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Right Arm is Warm" with good appealing voice accordingly.

- **GALVANIC SKIN RESISTANCE BIOFEEDBACK :**
  - Researcher will,
  1. Ask Subject to clean their fingers.
  3. Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
  5. Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

---

**8TH DAY TRAINING SESSION**

- **BODY PART** : LEFT LEG (L.L.)
- **THERAPY** : Autogenic Training/Warmness Exercise
- **TRAINING** : Galvanic Skin Resistance Biofeedback
- **DURATION** : 40 Minutes

(I) **GENERAL RELAXATION TRAINING (10 MINUTES)**
Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

1. Psychological Preparation of Subject.
2. Training Oneself.
4. Shifts in Thought Process
5. Whole Body Relaxed

(II) **AUTOGENIC TRAINING [WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)**

Subject has to feel Warm his particular body part. Researcher will give clear instruction about Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Left Leg is Warm" with good appealing voice accordingly.

**GALVANIC SKIN RESISTANCE BIOFEEDBACK :**

- **RESEARCHER WILL,**
  1. Ask Subject to clean their fingers.
  3. Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
  5. Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

| **9th DAY TRAINING SESSION** |

| **BODY PART** | **RIGHT LEG (R.L.)** |
THERAPY : Autogenic Training/Warmness Exercise

TRAINING : Galvanic Skin Resistance Biofeedback

DURATION : 40 Minutes

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING [WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Warm his particular body part. Researcher will give clear instruction about Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Right leg is warm" with good appealing voice accordingly.

GALVANIC SKIN RESISTANCE BIOFEEDBACK :

RESRACHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.
(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

10th Day Training Session

- **BODY PART**: Whole Body
- **THERAPY**: Autogenic Training/Warmness Exercise
- **TRAINING**: Galvanic Skin Resistance Biofeedback
- **DURATION**: 40 Minutes

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

1. Psychological Preparation of Subject.
2. Training Oneself.
4. Shifts in Thought Process
5. Whole Body Relaxed

(II) AUTOGENIC TRAINING [WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Warm his particular body part. Researcher will give clear instruction about Warmness Exercise & Galvanic Skin Resistance
Biofeedback while making a statement "Your Whole Body is warm" with good appealing voice accordingly.

GALVANIC SKIN RESISTANCE BIOFEEDBACK : 
RESEARCHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

11TH DAY TRAINING SESSION

BODY PART : LEFT ARM (L.A.)
THERAPY : Autogenic Training / Heaviness Exercise
+ Warmness Exercise
TRAINING : Galvanic Skin Resistance Biofeedback
DURATION : 40 Minutes

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

**II) AUTOGENIC TRAINING** [WARMNESS EXERCISE + WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Heavy & Warm his particular body part. Researcher will give clear instruction about Heaviness Exercise, Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Left Arm is Heavy, Your Left Arm is Warm & Your Left Arm is Heavy & Warm" with good appealing voice accordingly.

— GALVANIC SKIN RESISTANCE BIOFEEDBACK:
RESRACHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

---

**12TH DAY TRAINING SESSION**

- **BODY PART**: RIGHT ARM (R.A.)
- **THERAPY**: Autogenic Training / Heaviness Exercise + Warmness Exercise
- **TRAINING**: Galvanic Skin Resistance Biofeedback
- **DURATION**: 40 Minutes

(I) **GENERAL RELAXATION TRAINING (10 MINUTES)**
Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING [WARMNESS EXERCISE + WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Heavy & Warm his particular body part. Researcher will give clear instruction about Heaviness Exercise, Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Right Arm is Heavy, Your Right Arm is Warm & Your Right Arm is Heavy & Warm" with good appealing voice accordingly.

GALVANIC SKIN RESISTANCE BIOFEEDBACK:
RESEARCHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

13TH DAY TRAINING SESSION
BODY PART : LEFT LEG (L. L.)

THERAPY : Autogenic Training / Heaviness Exercise
          + Warmness Exercise

TRAINING : Galvanic Skin Resistance Biofeedback

DURATION : 40 Minutes

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING[WARMNESS EXERCISE + WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Heavy & Warm his particular body part. Researcher will give clear instruction about Heaviness Exercise, Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Left Leg is Heavy, Your Left Leg is Warm & Your Left Leg is Heavy & Warm" with good appealing voice accordingly.

GALVANIC SKIN RESISTANCE BIOFEEDBACK : 

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and then on subjects on the tips of any two fingers.

(4) Switch on the G.S.R. Biofeedback Monitor.

(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

<table>
<thead>
<tr>
<th>14th DAY TRAINING SESSION</th>
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<tbody>
<tr>
<td>BODY PART</td>
</tr>
<tr>
<td>THERAPY</td>
</tr>
<tr>
<td>TRAINING</td>
</tr>
<tr>
<td>DURATION</td>
</tr>
</tbody>
</table>

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

(1) Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING[WARMNESS EXERCISE + WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)
Subject has to feel Heavy & Warm his particular body part. Researcher will give clear instruction about Heaviness Exercise, Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Right Leg is Heavy, Your Right Leg is Warm & Your Right Leg is Heavy & Warm" with good appealing voice accordingly.

GALVANIC SKIN RESISTANCE BIOFEEDBACK:

RESRACHER WILL,

1. Ask Subject to clean their fingers.
3. Put electrodes to the tips of fingers first on himself and then on subjects on the tips of any two fingers.
5. Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

15TH DAY TRAINING SESSION

<table>
<thead>
<tr>
<th>BODY PART</th>
<th>WHOLE BODY</th>
</tr>
</thead>
<tbody>
<tr>
<td>THERAPY</td>
<td>Autogenic Training / Heaviness Exercise + Warmness Exercise</td>
</tr>
<tr>
<td>TRAINING</td>
<td>Galvanic Skin Resistance Biofeedback</td>
</tr>
<tr>
<td>DURATION</td>
<td>40 Minutes</td>
</tr>
</tbody>
</table>

(I) GENERAL RELAXATION TRAINING (10 MINUTES)

Suggestions will be induced in him while making his posture relaxed. All body would be covered whole while making a statement starting from "Your Head is relaxed" till "Your feet are relaxed". Major steps in training are as under.

1. Psychological Preparation of Subject.
(2) Training Oneself.
(3) Bodily Sensations.
(4) Shifts in Thought Process
(5) Whole Body Relaxed

(II) AUTOGENIC TRAINING [WARMNESS EXERCISE + WARMNESS EXERCISE] + GALVANIC SKIN RESISTANCE BIOFEEDBACK (20 MINUTES)

Subject has to feel Heavy & Warm his particular body part. Researcher will give clear instruction about Heaviness Exercise, Warmness Exercise & Galvanic Skin Resistance Biofeedback while making a statement "Your Whole body is Heavy, Your Whole body is Warm & Your Whole body is Heavy & Warm" with good appealing voice accordingly.

GALVANIC SKIN RESISTANCE BIOFEEDBACK:

RESEARCHER WILL,

(1) Ask Subject to clean their fingers.
(2) Apply K.Y. Jell for good conductance.
(3) Put electrodes to the tips of fingers first on himself and than on subjects on the tips of any two fingers.
(4) Switch on the G.S.R. Biofeedback Monitor.
(5) Observe Basal Value & Relaxed Value accordingly.

(III) researcher will ask subject to relaxed his whole body from head to feet without giving any instructions for 10 minutes as general relaxation.

Administration of Tests and Collection of Data

The following standardized equipments / apparatus were utilized for collecting essential information.
1. Audio-visual reaction time apparatus
2. Stabilometer
3. Eye-hand co-ordination
4. G.S.R. biofeedback machine
5. Pulse rate monitor
Details of above equipments / apparatus is described below:

**REACTION TIME APPARATUS (AUDIO - VISUAL)**

The "Audio-Visual Reaction Time" apparatus is multi stimulus type with 3 audio stimulus and 3 types of visual stimuli. The clock of the audio-visual reaction time apparatus is Quartz controlled for greater accuracy and precision.

- The range of apparatus is 0 to 9999.9999 seconds.
- Audio stimulus : Continuous beep of 1 Khz. On speaker.
- Visual stimulus : Soothing red, yellow and green lights.
- Resolution : .0001 Sec.

The subject will be asked to press the ready switch with his finger and this will be indicated on the ready indicator on the operator's side. Then the subject presses the switch corresponding to the stimulus given, the stimulus becomes off and the clock stops and the measured reaction time is displayed on the digital display. Every sport person will undergo 10 practice trial followed by 25 trials each on simple audio reaction time, simple visual reaction time, choice audio reaction time, choice visual reaction time. The average of all four parameter will be calculated.

**STABILOMETER**

The purpose of this apparatus is to test hand steadiness and concentration. This (stabilometer) instrument has been design to measure one aspect of the psychomotor phenomena of steadiness. The subject will be hold the styles in each hold without touching the sides for a given interval of time. The 9 holes, gradually diminishing in size are used. The effects on steadiness of such variable as exercise, handedness, smoking or alcoholic ingestion just before being tested can be studied. Following a series of trials, the performance curves can also be analyzed for practice efforts and fatigue.

**EYE-HAND CO-ORDINATION**

This apparatus is designed like a star pattern. Without touching the edge one has to complete the anticlockwise circle on the star pattern. Errors will be noted in digit numbers. The purpose of this apparatus is to test eye-hand co-ordination.
G.S.R. BIOFEEDBACK MACHINE

Galvanic Skin Resistance (G.S.R.) feedback is utilized clinically as a convenient indicator of emotional responses and as a training tool for generalized reduction of sympathetic activity and the treatment of related psychosomatic and psychological disorders. Feedback dermography is the process of monitoring and displaying to an individual his skin’s ongoing electrical properties and activity. While applying small quantity of jelly on the two electrodes, which will be fixed on any two alternate fingers of one hand of the subject, by means of velcro tapes. Then the subject will be trained through relaxation technique to glow all the green bars then next sensitivity is selected and the subject is asked to try for glowing more green bars, which is indicator for relaxed state. If surrounding environment of the room is not to be disturbed then headphone can be used for audio feedback.

PULSE MONITOR

This apparatus is a device having one electrode which is attached to person's any finger of any hand shows regularly heart rate. Heart rate can be noted in electronic digit number.

CONDUCTING EXPERIMENT

Researchers has conducted experiment for the present study: The details regarding pre-testing, implementation of treatment and post-testing are given below.

PRE AND POST TESTING OF DEPENDANT VARIABLES

Before implementation of treatment four dependent variables involved in the study were measured. PRE -TESTING was for both groups that are, Experimental Group and Control Group of all three sports disciplines. Researcher gave clear instructions & demonstration to both Groups and then subjects were tested accordingly.

REACTION TIME. First introductory session was conducted before tests and clear demonstration was given by researcher and then only all the subjects were tested on Reaction Time apparatus. Simple Visual Reaction Time (S.V.R.T.) Choice Visual Reaction Time (C.V.R.T.), Simple Audio Reaction Time (S.A.R.T.), and Choice Audio Reaction Time (C.A.R.T.) score and
average score was taken on Score Sheet. 10 trials were given for each reaction time test respectively.

**CO-ORDINATION.** Researcher gave clear demonstration and instructions about test & apparatus and then all the subjects were tested on Eye-Hand Co-ordination apparatus accordingly. Subject has to rotate the stylus by both hands on the star pattern. One time they have to rotate. While rotating once, time is taken and no. of errors will be noted. Stop watch will be used. 5 Trials will be given, average time and average errors will be counted and noted on score sheet.

**CONCENTRATION (HAND STEADINESS TEST).** First researcher gave clear instruction & demonstration about apparatus & test. Then all the subjects were tested on Hand Steadiness (stabilometer) apparatus accordingly. In this test, subject has to insert the stylus in every hole i.e. 5th hole to 9th hole respectively. Error score of 5th hole to 9th hole was taken, average score was taken. 30 seconds time was given for each & every hole. Score sheet was prepared.

**ANXIETY / STRESS.** To measure this dependant variable researcher had recorded Basal Value and Relaxed Value respectively on Galvanic Skin Resistance Biofeedback Monitor. Researcher asked subject to clear fingers, then Researcher applied K.Y. Jell for good conductance. Researcher put electrodes to the tips of fingers first on himself and then only on subjects on the tips of any two fingers. Researcher switched on the G.S.R. Monitor and noted Basal Value & Relaxed Value in K. Ohms. respectively. Difference i.e. (Relaxed Value - Basal Value) was noted.

**Statistical Analysis of Data**

The collected data generated was tabulated on the master sheet according to the codes and subjected to the appropriate statistical analysis. Separate tables were prepared finally. Mean & standard deviation of experimental group and control group were calculated. Paired t-test and analysis of co-variance were calculated and applied for the analysis of data. On the basis of level of significance hypothesis were tested.