

CHAPTER-III

METHODOLOGY

In this chapter selection of the subjects, selection of variables, experimental design, pilot study, criterion measures, reliability of data, reliability of instruments, tester's reliability, subject reliability, specific training programme, specific training schedule, administration of test, collection of data and the statistical techniques used have been explained.

3.1 SELECTION OF SUBJECTS

This study was designed to find out the effect of isolated asanas, recreational games and aerobic exercises with stretching on selected physical fitness, co-ordinative ability and body composition variables of intellectually challenged persons.

To execute the present study the research investigator selected forty (40) male intellectually challenged persons with mild retardation from Ramakrishna Mission Vivekananda University (RMVU) Faculty of Disability Management and Special Education, Therapy Unit, Periyanaickenpalayam, Coimbatore, Tamil Nadu. Their age groups were ranged from 10 to 18 years. The selected subjects were randomly divided into four equal groups, experimental group I asana training group (ATG), experimental group II recreational games training group (RGTG), experimental group III aerobic exercises with stretching training group (AEWSTG) and control group (CG).

3.2 SELECTION OF VARIABLES

The purpose of this study was to find out the significant changes on the selected physical fitness, co-ordinative ability and body composition variables, due to asanas, recreational games and aerobic exercises with stretching trainings for a period of twelve

(12) weeks. The research scholar reviewed that the available scientific literature pertaining to the study from books, journals, magazines and websites based on the consideration of feasibility criteria, the following variables were selected.

TABLE-II
SELECTED DEPENDENT VARIABLES

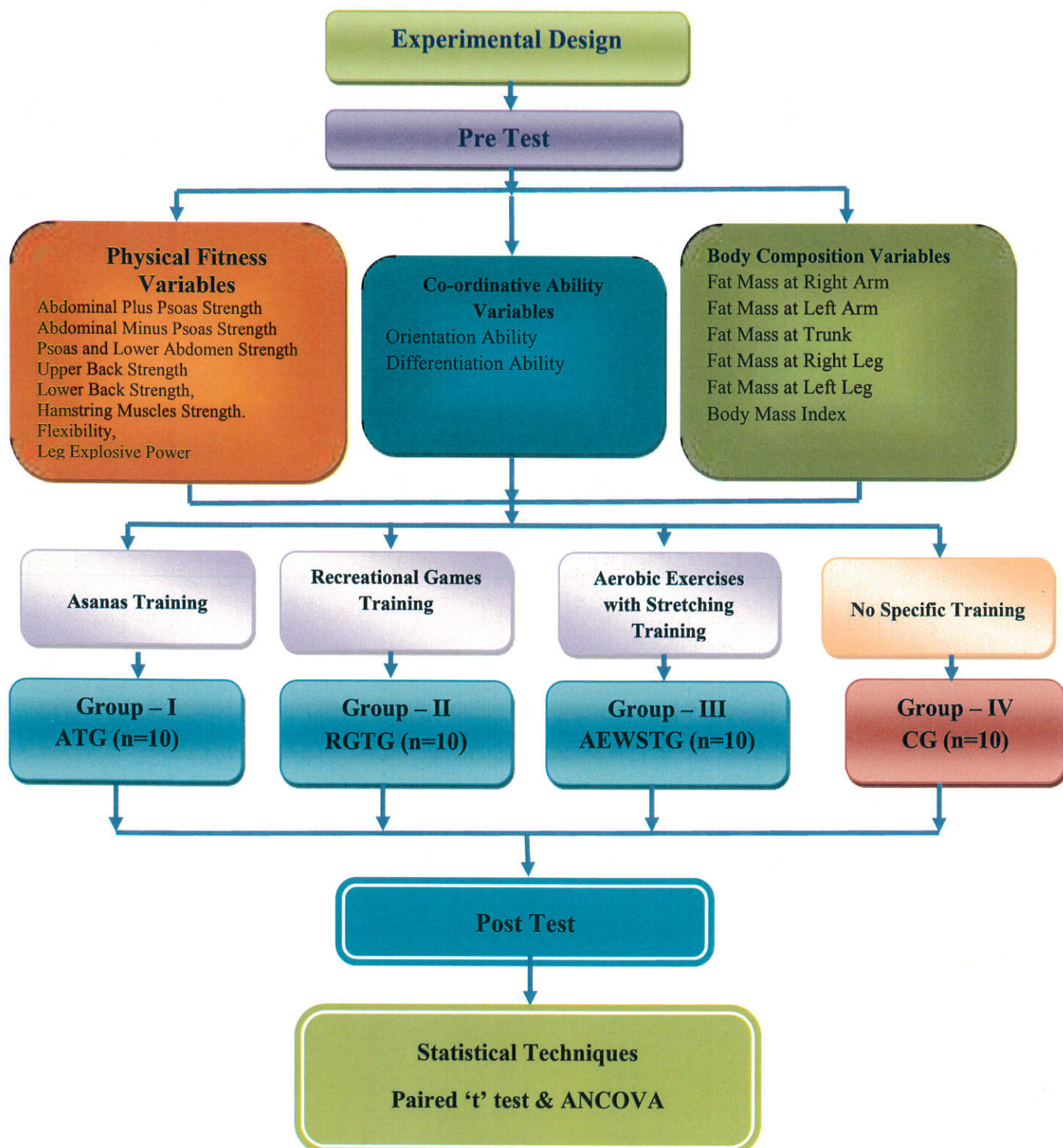
Variables	Sub Variables
Physical Fitness	Abdominal Plus Psoas Strength Abdominal Minus Psoas Strength Psoas and Lower Abdomen Strength Upper Back Strength Lower Back Strength Hamstring Muscles Strength Flexibility Leg Explosive Power
Co-ordinative Abilities	Orientation Ability Differentiation Ability
Body Composition	Fat Mass at Right Arm Fat Mass at Left Arm Fat Mass at Trunk Fat Mass at Right Leg Fat Mass at Left Leg Body Mass Index

3.3 EXPERIMENTAL DESIGN

The purpose of the study was to find out the effect of isolated asanas, recreational games and aerobic exercises with stretching training on selected physical fitness, coordinative ability and body composition variables of intellectually challenged persons with 10 to 18 years of age. For the purpose of the study 40 male mild intellectually

challenged persons were randomly selected and they were divided into four equal groups namely asanas training, recreational games training, aerobic exercises with stretching training and control groups consisted of 10 subjects each. Random group design was adopted for the study. Asanas training, recreational games training and aerobic exercises with stretching training were given for 12 weeks, and the control group was not given any specific training. Tests were conducted before and after the 12 weeks of training on the selected physical fitness, coordinative ability and body composition variables of intellectually challenged persons.

EXPERIMENTAL DESIGN FLOW CHART



3.4 PILOT STUDY

A Pilot study was conducted to assess the initial ability and the capacity of the subjects in order to design the training programme. For this purpose twelve intellectually challenged persons were selected at random from the selected subjects and they were subjected to asanas, recreational games and aerobic exercises with stretching under the watch full eyes of experts and the investigator. Based on the results of the pilot study, the training schedule was designed for the experimental groups. The pre and posttests were administered and the scores were recorded. The test procedures of dependent variables for the pretest were strictly followed in the post test.

3.5 CRITERION MEASURES

After going through the related research literature and in consultation with the professional experts, the following variables were selected as criterion measures for testing the hypothesis of the study, and they are shown in table III.

TABLE-III

SELECTED VARIABLES AND THEIR TEST ITEMS

S.No	Criterion Variables	Test Items/Instruments	Unit of Measurement
Physical Fitness Variables			
1	Abdominal Plus Psoas Strength	Kraus Weber test (H.Harrison Clarke, David H. Clarke, 1987)	Scores
2	Abdominal Minus Psoas Strength	Kraus Weber test(H.Harrison Clarke, David H. Clarke, 1987)	Scores
3	Psoas and Lower Abdomen Strength	Kraus Weber test(H.Harrison Clarke, David H. Clarke, 1987)	Scores
4	Upper Back Strength	Kraus Weber test(H.Harrison Clarke, David H. Clarke, 1987)	Scores

TABLE-IV
RELIABILITY CO- EFFICIENT OF CORRELATION OF TEST-RETEST
SCORES ON SELECTED PHYSICAL FITNESS, CO-ORDINATIVE
ABILITY AND BODY COMPOSITION VARIABLES.

S. No	Criterion Variables	' r ' Value
1	Abdominal Plus Psoas Strength	0.93*
2	Abdominal Minus Psoas Strength	0.92*
3	Psoas and Lower Abdomen Strength	0.94*
4	Upper Back Strength	0.92*
5	Lower Back Strength	0.90*
6	Hamstring Muscles Strength	0.91*
7	Flexibility	0.93*
8	Leg Explosive Power	0.94*
9	Orientation Ability	0.93*
10	Differentiation Ability	0.91*
11	Fat Mass at Right Arm	0.92*
12	Fat Mass at Left Arm	0.94*
13	Fat Mass at Trunk	0.95*
14	Fat Mass at Right Leg	0.92*
15	Fat Mass at Left Leg	0.93*
16	Body Mass Index	0.91*

3.9 SUBJECTS' RELIABILITY

The above test re-tests co-efficient of correlation values show that the subject's reliability was adequate as the same subjects were used under similar conditions by the same tester and no motivational techniques were used. The pre-test and post-test methods were used to find out the subjects' reliability.

3.10 TRAINING PROGRAMME

Since the system of education for the differentially abled is the individualized education programme, the play activity also has to be taught by the individualized training programme, physical education teacher, special educators and the parents of the special children were included for the individualized training programme. They were given enough orientation on asanas, recreational games and aerobic exercises with stretching training programme to be given by the investigator.

The investigator selected forty male intellectually challenged persons with mild retardation from Ramakrishna Mission Vivekananda University (RMVU) Faculty of Disability Management and Special Education, Therapy unit, Periyanaickenpalayam, Coimbatore, Tamil Nadu. Their ages were ranged from 10 to 18 years. The selected subjects were divided in to four equal groups randomly with ten (10) subjects each namely asanas training, recreational games training and aerobic exercise with stretching training and control groups. All the experimental groups underwent ATG, RGTG and AEWSTG programme for a period of 12 weeks on five days per week. Each training session was for one hour duration. Control group (CG) did not undergo any specific treatment during the period.

In each training session, the training was imparted for duration of 60 minutes, which include 5 to 10 minutes warming up and 5 to 10 minutes relaxation process after the training programme for five days per week for a period of 12 weeks. The length of the training intervention for this study was based on the fact that twelve weeks has been shown to be of sufficient to provide significant changes in mentally retarded persons. (Telles and Naveen, 1997).

The experimental groups underwent their respective training programmes under the supervision of the investigator, parents and experts. The subjects were carefully monitored and questioned about their health status throughout the training period. None of them have reported any complication. The control group was not given any specific treatment apart from their routine. Further, all the participants were instructed neither to change their life style nor to change their dietary intake for the entire duration of the training period.

The training schedule for the experimental groups was designed as per the results of the pilot study and also based on the guidelines given in the training schedule.

3.11 TRAINING SCHEDULE

Training programme was conducted systematically to improve the performance of selected criterion variables. Investigator had given the specific training programme in the following manner as given below.

List of Asanas

Tadasana	Ekapadasana	Trikonasana
Padahastasana	Ushtrasana	Navasasana
Garudasana	Vajrasana	Supta Vajrasana
Sasangasana	Janu Sirasasana	Paschimotanasana
Vakrasana	Utkatasana	Adhomukhasvanasana
Bhujangasana	Vipareetha Karani	Salabhasana
Dhanurasana	Pawanmuktasana	

6. Breathe gently and maintain this position for several deep.

Ushtrasana

Procedure

1. The subjects sat on knees and bend backward.
2. Hold right ankles or heel with a right hand and left ankle or heel with a left hand.
3. Now bend the neck and head back and push waist area slightly forward.
4. Breathing should be normal for 6 to 10 seconds in this position.
5. After 6 to 10 seconds return to the first position by bending forward. Release the hands from heels. This was one round of ushra Asana. Repeat this for some more rounds.

Navasasana

Procedure

1. The subjects sat with legs extended forward.
2. Legs joined together and straight, back straight, palms on the lap.
3. Shoulder relaxed, eyes closed.
4. On inhale, rise arms from the front, above the head.
5. Arms straight across ears, palms facing front.
6. On exhale, while lowering straight arms to shoulders level; lean back and lift straight legs.
7. Legs and arms straight palms across legs and turned downwards, body balanced on the buttocks.
8. On inhale, lower legs to the floor while rise arms.
9. While exhale, lower arms from the front.

Garudasana

Procedure

1. The subjects stood in tadasana.
2. Bend the right knee, bring the left leg over the right thigh above the right knee and rest back of the left thigh in the front of the right thigh.
3. Then move the left foot behind the right gastrocnemius so that left shin touches the right gastrocnemius and the left big toe hooks just above the inner side of the right ankle.
4. Bend the elbow joint then move the right hand back and the left hand back to the left and join the palms.
5. Release the hands and legs came back to standing position. Repeat the other side.

Vajrasana

Procedure

1. The subjects sat with knees, ankles and big toes touching the ground, take a kneeling position
2. The subjects sat on the heels and place the palms on knees.
3. The spine should be erect and the breathing should be deep
4. Draw the abdominal region inside and extend the chest.

Supta Vajrasana

Procedure

1. The subjects sat in vajrasana with heels pointing outwards and big toes touching. The body was upright, hands rest on the thighs. Relax the whole body.
2. Breathing normally place the hands on the floor beside the buttocks.
3. Bend the elbows and slowly lean the body back until the elbows rest on the floor.

4. Lower the head backward until the top of the head touches the floor.
5. Bring palms together in front of the chest and hold the posture.
6. Breathing was fully relaxed and slightly deeper than normal, inhale through the nose and exhale through the mouth.
7. With the help of the elbows slowly return to the starting position.

Sasangasana

Procedure

1. The subjects sat in vajrasana.
2. Lift the arms sideways above the head with the palms facing forward and with the shoulder inside apart.
3. Slowly bend the body at the hips and place the arms on the floor, palms facing the ground.
4. Stay in this pose for 30 seconds.
5. Then slowly lift the body up while exhaling and at the same time release the grip of the hands from the floor.

Janu Sirsasana

Procedure

1. The subjects sat at on the floor with an erect spine.
2. Stretch the right leg in front.
3. The subjects fold left leg and try to place the sole of left leg on the inner part of the right thigh.
4. Now inhale and raise the both the hands.
5. While exhaling bend forward to place the head on right knee.
6. If possible try to hold the toe of right leg with the both hands.

7. Hold this position for few seconds and kept breath deeply.
8. Now when inhaling come up, raise the hands and when exhaling bring the arms down to the sides, repeat this with stretching left leg

Paschimotanasana

Procedure

1. The subject sat in a long sitting position by stretching the legs forward with the heels and the big toes of both legs touching each other.
2. The subject slowly raised the arms forward and upward palms facing forward at shoulder width distance.
3. As the arms reach above head position stretch up to straighten the back.
4. Ensuring the bending at hips, the subject slowly bends down and tries to hold the maximum reachable part either of the knees, ankles or the sole of the feet so that the back was not arched badly and no bent at knees occur.

Vakrasana

Procedure

1. The subjects sat erect with the legs stretched out. Make sure that the feet are placed together and spine was absolutely erect.
2. Now, bend the left leg such that the heel of the left foot lies next to the right hip. One could also kept the left leg stretched out if like.
3. Then, place the right leg next to the left knee by taking it over the knee.
4. Twist the waist, neck, and shoulders towards the right, and set the gaze over right shoulder. Make sure that the spine was erect.
5. Hold the pose for a few seconds, about 30 to 60 as you breathe slowly, yet deeply.

6. Exhale and release the right hand, and then the waist, chest, and finally the neck.

Relax as the sat straight.

7. Repeat the steps on the other side, and then exhale and came back to the front.

Utkatasana

Procedure

1. The subjects stood straight with an erect spine and arms at the side.
2. Keep some distance between the feet.
3. Stretch the hands forward to kept them parallel to the ground. Hands should be straight and palms would be facing downward.
4. Now bent knees and bring the pelvis down like sitting on a chair.
5. Try to bring the thighs parallel to the ground.
6. Hold this position for one minute and kept breathing normally. Bring a smile on the face.
7. Now release the pose to came to the starting position

Adhomukhasvanasana

Procedure

1. The subjects stood on four limbs, such that body forms a table-like structure.
2. Exhale and gently lift the hips and straighten the elbows and knees. The body forms an inverted 'V'.
3. Both the hips. Make sure that the toes point outwards.
4. Now, press the hands into the ground and lengthen the neck, ears would be touch the inner arms, and one should turn the gaze to the navel.
5. Hold for a few seconds, and then, bend the knees and return to the table position.

Bhujangasana

Procedure

1. The subjects lay prone on the floor. Stretch the legs back, tips of the feet on the floor.
2. Spread the hands on the floor under the shoulders. Tug the elbows back into the body.
3. Press the tips of the feet and thighs and the hip firmly into the floor.
4. Inhale and begin to straighten the arms to lift the chest off the ground, going only to the level at which can maintain a connection through the pub was to the legs. Press the tailbone towards the pubis and comfort the pubis towards the navel. Narrow the hip points firmly without hardening the buttocks.
5. With the shoulder blades against the back, puff the side ribs forward. Lift the top of the sternum but don't pushing the front ribs forward, which only hardens the lower back. Kept the backend evenly throughout the entire spine.
6. Hold the pose anywhere from 15 to 30 seconds, breathing should be easily. Now release the back from the floor with an exhalation. Repeat this exercise according to the capacity. After practicing this asanas, the same can be done in the form of Bhujangasana.

Vipareetha Karani

Procedure

1. The subjects lay flat on the back. Inhale deeply while raising leg and spine until the toes point to the ceiling.

2. The body rests on the shoulders and the back of the neck, with the supported hands, which were placed on the centre of the spine between the waist and the shoulder blades. Kept spine and legs straight.
3. Breathe slowly and deeply with the abdomen. For a male, the thyroid gland was located behind the Adams apple. For women, it was located in the same area which was few inches above the sterna notch (hollow of the neck where the neck joins the rest of the body) or approximately half way up the neck from the sterna notch. Stay in this position.
4. To come out of this posture, just bend the knees, curve the back and slowly return to lying on the floor while exhaling. First bent the knees, put the palms on the floor, then curving the spine, gradually unfold it the way one unrolls a carpet. When entire back should touches the floor, straighten the knees, take a deep breath and slowly lower legs to the floor while breathing out.

Salabhasana

Procedure

1. The subjects lying on prone position, hands along the sides of the body with palms up and chin on the floor. Stretch the arms back.
2. Lift the head, chest and legs off the floor simultaneously as high as possible. The hands and ribs should rest on the floor.
3. Only the abdominal front portion of the body rests on the floor and bears the whole body weight.
4. Kept both legs fully extended and straight.
5. Do not bear the weight of the body on the hands but stretch them back to exercise the upper portion of the neck muscles.

Dhanurasana

Procedure

1. The subjects begin lying down on the stomach, reach back and grasp the ankles.
Inhale and lifting legs, head and chest, arch the back into a bow.
2. Retain breath, then exhale and lie flat. Repeat the process.
3. While in the bow position, rock back and forth, then from side to side.
4. Slowly release and exhale.

Pawanmuktasana

Procedure

1. The subjects lay flat on the back on a smooth surface, ensuring that the feet are together, and arms are placed beside the body.
2. Take a deep breath. While exhale, bring the knees towards the chest, and press the thighs on the abdomen. Clasp the hands around the legs as if the subjects are hugging the knees.
3. Hold the asana while breathe normally. Every time while exhale, make sure tighten the grip of the hands on the knee, and increase the pressure on the chest. Every time while inhaling, ensure that the subjects loosen the grip. Exhale and release the pose.

List of Recreational Games

Forward Running Relay	All Up and All Down Relay	Over and under Passing Relay
Target pass	Shifting the Indian Club	Kangaroo Relay
Crab Relay	Knee Touching	Tunnel Ball Relay
Potato race	Target Roll	Ball Bounce Relay
Frog Jumping Relay	Driving the Pig to the Market	The "UPS" Contest (Badminton)
Backward Running Relay	Snatch the kerchief	Racket Bounce (Table Tennis)
Zig Zag relay	In the Pond, On the Bank	Rope skipping relay
Driving the Puck	One leg relay	
Shifting the ring	Dodge ball	

TABLE - VI

1stWeek Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	Forward running relay	1	1	10	2	
	Target pass	1	1	12	2	
	Crab relay	1	1	12	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Forward running relay	1	1	10	2	
	Target pass	1	1	14	2	
	Crab relay	1	1	15	2	
	Warm down	-	-	5	-	
Wednesday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	Potato race	1	1	10	2	
	Frog jump	1	1	12	2	
	Backward running relay	1	1	12	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Potato race	1	1	12	2	
	Frog jump	1	1	14	2	
	Backward running relay	1	1	13	2	
	Warm down	-	-	5	-	
Friday	Warm up	-	-	10	-	60
	Forward running relay	1	1	12	2	
	Potato race	1	1	14	2	
	Frog jump	1	1	13	2	
	Warm down	-	-	5	-	

TABLE - VII

2nd Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	Zig zag relay	1	1	10	2	
	Driving the duck	1	1	12	2	
	Shifting the ring	1	1	12	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Zig zag relay	1	1	13	2	
	Driving the duck	1	1	14	2	
	Shifting the ring	1	1	12	2	
	Warm down	-	-	5	-	
Wednesday	Orientation of the games	-	-	5	-	60
	All up and all down relay	-	-	10	-	
	Shifting the Indian club	1	1	10	2	
	Knee touching	1	1	12	2	
	Warm down	1	1	12	2	
Thursday	Warm up	-	-	10	-	60
	All up and all down relay	-	-	12	-	
	Shifting the Indian club	1	1	13	2	
	Knee touching	1	1	14	2	
	Warm down	1	1	5	2	
Friday	Warm up	-	-	10	-	60
	All up and all down relay	1	1	12	2	
	Shifting the Indian club	1	1	13	2	
	Knee touching	1	1	14	2	
	Warm down	-	-	5	-	

TABLE - VIII

3rd Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10	-	60
	Zig zag relay	1	1	13	2	
	Driving the duck	1	1	13	2	
	Shifting the ring	1	1	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Zig zag relay	1	1	13	2	
	Driving the duck	1	1	12	2	
	Shifting the ring	1	1	14	2	
	Warm down	-	-	5	-	
Wednesday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	All up and all down relay	-	-	12	-	
	Shifting the Indian club	1	1	12	2	
	Knee touching	1	1	10	2	
	Warm down	1	1	5	2	
Thursday	Warm up	-	-	10	-	60
	All up and all down relay	-	-	13	-	
	Shifting the Indian club	1	1	12	2	
	Knee touching	1	1	14	2	
	Warm down	1	1	5	2	
Friday	Warm up	-	-	10	-	60
	All up and all down relay	1	1	13	2	
	Shifting the Indian club	1	1	12	2	
	Knee touching	1	1	14	2	
	Warm down	-	-	5	-	

TABLE - IX

4th Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	Target roll	1	1	10	2	
	Driving the pig to the Market	1	1	12	2	
	Snatch the kerchief	1	1	12	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Target roll	1	1	13	2	
	Driving the pig to the Market	1	1	12	2	
	Snatch the Kerchief	1	1	14	2	
	Warm down	-	-	5	-	
Wednesday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	Rope skipping relay	1	1	10	2	
	Racket bounce	1	1	12	2	
	In the pond on the bank	1	1	12	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Rope skipping relay	1	1	14	2	
	Racket Bounce	1	1	13	2	
	In the pond on the bank	1	1	12	2	
	Warm down	-	-	5	-	
Friday	Warm up	1	1	10	2	60
	Rope skipping relay	1	1	14	2	
	Racket Bounce	1	1	13	2	
	In the pond on the bank	-	-	12	-	
	Warm down	-	-	5	-	

TABLE - X

5th Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10		60
	Target roll	1	1	13	2	
	Driving the pig to the market	1	1	13	2	
	Snatching the kerchief	1	1	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Target roll	1	1	12	2	
	Driving the pig to the market	1	1	14	2	
	Snatching the kerchief	1	1	13	2	
	Warm down	-	-	5	-	
Wednesday	Warm up	-	-	10	-	60
	Rope skipping relay	1	1	13	2	
	Racket Bounce	1	1	13	2	
	In the pond on the bank	1	1	13	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Rope skipping relay	1	1	12	2	
	Racket Bounce	1	1	14	2	
	In the pond on the bank	1	1	13	2	
	Warm down	-	-	5	-	
Friday	Warm up	1	1	10	2	60
	Rope skipping relay	1	1	12	2	
	Racket Bounce	1	1	14	2	
	In the pond on the bank	-	-	13	-	
	Warm down	-	-	5	-	

TABLE - XI

6th Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10	-	60
	Target roll	1	1	13	2	
	Driving the pig to the market	1	1	13	2	
	Snatching the kerchief	1	1	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Target roll	1	1	12	2	
	Driving the pig to the market	1	1	14	2	
	Snatching the kerchief	1	1	13	2	
	Warm down	-	-	5	-	
Wednesday	Warm up	-	-	10	-	60
	Rope skipping relay	-	-	13	-	
	Nondi tag	1	1	13	2	
	In the pond on the bank	1	1	13	2	
	Warm down	1	1	5	2	
Thursday	Warm up	-	-	10	-	60
	Rope skipping relay	1	1	12	2	
	Nondi tag	1	1	14	2	
	In the pond on the bank	1	1	13	2	
	Warm down	-	-	5	-	
Friday	Warm up	1	1	10	2	60
	Rope skipping relay	1	1	12	2	
	Nondi tag	1	1	14	2	
	In the pond on the bank	-	-	13	-	
	Warm down	-	-	5	-	

TABLE - XII

7thWeek Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	One leg relay	1	1	10	2	
	Dodge ball	1	1	12	2	
	Over & under passing relay	1	1	12	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	One leg relay	1	1	13	2	
	Dodge ball	1	1	12	2	
	Over & under passing relay	1	1	14	2	
	Warm down	-	-	5	-	
Wednesday	Orientation of the games	-	-	5	-	60
	Warm up	-	-	10	-	
	Kangaroo relay	1	1	10	2	
	Tunnel ball relay	1	1	12	2	
	Ball bounce relay	1	1	12	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Kangaroo relay	1	1	13	2	
	Tunnel ball relay	1	1	12	2	
	Ball bounce relay	1	1	14	2	
	Warm down	-	-	5	-	
Friday	Warm up	1	1	10	2	60
	Kangaroo relay	1	1	13	2	
	Tunnel ball relay	1	1	12	2	
	Ball bounce relay	-	-	14	-	
	Warm down	-	-	5	-	

TABLE - XIII

8th Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10	-	60
	One leg relay	1	1	13	2	
	Dodge ball	1	1	13	2	
	Over & under relay	1	1	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	One leg relay	1	1	13	2	
	Dodge ball	1	1	14	2	
	Over & under relay	1	1	12	2	
	Warm down	-	-	5	-	
Wednesday	Warm up	-	-	10	-	60
	Kangaroo relay	1	1	10	2	
	Tunnel ball relay	1	1	12	2	
	Ball bounce relay	1	1	12	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Kangaroo relay	1	1	13	2	
	Tunnel ball relay	1	1	14	2	
	Ball bounce relay	1	1	12	2	
	Warm down	-	-	5	-	
Friday	Warm up	1	1	10	2	60
	Kangaroo relay	1	1	13	2	
	Tunnel ball relay	1	1	14	2	
	Ball bounce relay	-	-	12	-	
	Warm down	-	-	5	-	

TABLE - XIV

9thWeek Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10	-	60
	Tunnel ball relay	1	2	13	2	
	Crab relay	1	2	13	2	
	Shifting the ring	1	2	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Tunnel ball relay	1	2	13	2	
	Crab relay	1	2	13	2	
	Shifting the ring	1	2	13	2	
	Warm down	-	-	5	-	
Wednesday	Warm up	-	-	10	-	60
	Zig zag relay	1	2	14	2	
	Kangaroo relay	1	2	13	2	
	The "ups" contest(Badminton)	1	2	12	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Zig zag relay	1	2	14	2	
	Kangaroo relay	1	2	13	2	
	The "ups" contest(Badminton)	1	2	12	2	
	Warm down	-	-	5	-	
Friday	Warm up	-	-	10	-	60
	Zig zag relay	1	2	14	2	
	Kangaroo relay	1	2	13	2	
	The "ups" contest(Badminton)	1	2	12	2	
	Warm down	-	-	5	-	

TABLE - XV

10th Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10	-	60
	One leg relay	1	2	13	2	
	Backward running relay	1	2	13	2	
	Ball bounce relay	1	2	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	One leg relay	1	2	13	2	
	Backward running relay	1	2	13	2	
	Ball bounce relay	1	2	13	2	
	Warm down	-	-	5	-	
Wednesday	Warm up	-	-	10	-	60
	One leg relay	1	2	14	2	
	Backward running relay	1	2	13	2	
	Ball bounce relay	1	2	12	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Forward running relay	1	2	14	2	
	Crab relay	1	2	13	2	
	Snatching the kerchief	1	2	12	2	
	Warm down	-	-	5	-	
Friday	Warm up	-	-	10	-	60
	Forward running relay	1	2	14	2	
	Crab relay	1	2	13	2	
	Snatching the kerchief	1	2	12	2	
	Warm down	-	-	5	-	

TABLE - XVI

11th Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10	-	60
	Driving duck	1	2	12	2	
	Shifting the Indian club	1	2	14	2	
	Frog jump	1	2	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Driving duck	1	2	12	2	
	Shifting the Indian club	1	2	14	2	
	Frog jump	1	2	13	2	
	Warm down	-	-	5	-	
Wednesday	Warm up	-	-	10	-	60
	Driving duck	1	2	12	2	
	Shifting the Indian club	1	2	14	2	
	Frog jump	1	2	13	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Over & under relay	1	2	12	2	
	Target roll	1	2	13	2	
	Dodge ball	1	2	14	2	
	Warm down	-	-	5	-	
Friday	Warm up	-	-	10	-	60
	Over & under relay	1	2	12	2	
	Target roll	1	2	13	2	
	Dodge ball	1	2	14	2	
	Warm down	-	-	5	-	

TABLE - XVII

12th Week Training Programme on Recreational Games Training Group

Day	Recreational Games	Rep.	Set	Duration (In Minutes)	Density Between Games (in Minutes)	Total Duration (in Minutes)
Monday	Warm up	-	-	10	-	60
	Driving duck	1	2	12	2	
	Shifting the Indian club	1	2	14	2	
	Frog jump	1	2	13	2	
	Warm down	-	-	5	-	
Tuesday	Warm up	-	-	10	-	60
	Driving duck	1	2	12	2	
	Shifting the Indian club	1	2	14	2	
	Frog jump	1	2	13	2	
	Warm down	-	-	5	-	
Wednesday	Warm up	-	-	10	-	60
	Driving duck	1	2	12	2	
	Shifting the Indian club	1	2	14	2	
	Frog jump	1	2	13	2	
	Warm down	-	-	5	-	
Thursday	Warm up	-	-	10	-	60
	Over & under relay	1	2	12	2	
	Target roll	1	2	13	2	
	Dodge ball	1	2	14	2	
	Warm down	-	-	5	-	
Friday	Warm up	-	-	10	-	60
	Over & under relay	1	2	12	2	
	Target roll	1	2	13	2	
	Dodge ball	1	2	14	2	
	Warm down	-	-	5	-	

PROCEDURE OF PLAYING RECREATIONAL GAMES

Frog Jumping Relay

Equipment

Chunnam Powder

Description

The group was divided into teams of equal number. The teams stand behind the starting line. Each runner in turn takes a position on hands and feet, hands close together, feet slightly spread with knees outside of the arms. He advances by a series of frog-like jumps, leaping forward, landing on hands, and then bringing the feet up to the original position. In this position he traveled to the turning line and returns to the starting line. He touches off the second player who then repeats. The team finishing first was the winner.

Shifting the Indian club

Equipments

Chunnam Powder, 6 Indian clubs & stops watch

Description

The group was divided into teams of equal number. The teams stand behind the starting line. In front of each team, 6 meters away draw two circles of 1 meter diameter. On one of the circles, keep 3 Indian club standing. On signal, the first player of each team runs towards the circle, transfers all the three Indian clubs to the vacant circle, runs back and joins at the rear of the team. Then the second player of each team runs and changes the clubs to the vacant circle. The game continues till the last person completes turn. The team which finishes first was the winner.

One Leg Relay

Equipment

Chunnam Powder

Description

The group was divided into teams of equal number. The teams stand behind the starting line. The first player raises one leg behind and grasps it with both hands. He hops in this position to the turning line, then raises the other foot, grasps it as before and hops back and touches off the second player, who then repeats. The team finishing first was the winner.

Knee Touching (30 Seconds)

Equipments

Chunnam Powder & Stop watch

Description

The group was divided into two equal teams. One from each team partners and hold each other's wrist. Each player attempts to tap the partner's knee with his own hand. Either hand can be used. One point was awarded for each knee tap. This exercise was done for 30 seconds by all the pairs. The team which scores the maximum number of knee taps was declared the winner.

Note

In order to prolong the enjoyment of playing this game, it can be conducted for 3 or 4 of players at a time.

Shifting the Ring

Equipments

Tennikoit rings, 4 cricket stumps, a stop watch and marking powder

Description

The group was divided into a couple of teams of equal number. Each team stands behind its starting line. In front of each team, 6 meters away, fix two cricket stumps 1 meter apart. On one of the stumps, place one tennikoit ring. On getting the signal, the first player of each team runs towards the cricket stump and shifts the ring to the vacant stump, runs back and rejoins his team at the rear end. The second runner goes to the stump and shifts the tennikoit to the vacant stump. The game continues till the last person completes the turn. The team which finishes first was declared the winner.

The “UPS” Contest (Badminton)

Equipments

Badminton racquet, cock & a stop watch

Description

The group was divided into two teams of equal members. After the toss, the toss winning team gets the chance to start first. Now a cock was tossed into the air and was repeatedly hit in the air by the player.

Scoring

One point was awarded for each hit within a 30 second time frame.

Target Pass

Equipments

Two volleyballs, flat wall, chalk or floor, mat & a measuring tape.

Description

The group was divided into two teams of equal numbers. After the toss, the winning team takes a chance of trying first. A one meter square was drawn on a wall using a chalk or tape. The bottom line of the square had to be one meter up from the floor. A three meter square was marked on the floor 2.4 meters away from the wall. The player must stand within the square.

1. The player receives three points for hitting the wall inside the square
2. The player receives two points for hitting the lines of the square
3. The player receives one point for hitting the wall but not in or on any part of the square
4. Additional points : The player receives one point for catching the ball as it bounces back from the wall without leaving his standing position in the square
5. The player receives zero point if the ball bounces before hitting the wall.

Racket Bounce**Equipments**

Table Tennis racquet, 4 table tennis balls & a stopwatch

Description

The group was divided into two teams by sending one player to the table tennis court of equal members. After the toss, the winning team starts the game. A player scores one point for each bounce of the racquet ball in the course of 30 seconds. If the player loses control of the ball, he was given another ball and the game continues. The sum total of each player was the team score. The team which achieves the maximum number of ball tosses was declared as the winner.

Target Roll

Equipments

Two volleyballs, measuring tape & marking powder

Description

The group was divided into two teams of equal members. The distance between the middle of the target circle and the restricting line was 5 meters. After the toss, the winning team takes the chance of rolling the ball first. Each member of the team gets two chances to roll the ball into the target circle. If the rolled ball goes out of the circle, no point was awarded. The number of times as ball lands in the circle was awarded one point. The number of points scored by the team becomes its score and the points scored by all the players of the team become the score of the team.

Driving the Puck

Equipments

1.5 m wooden stick, hockey puck, Marking chalk & a stop watch.

Description

The group was divided into two teams of equal members. After winning the toss, the winning team lines up behind the restricting line. The first player takes a chance of driving the puck within the stipulated path by walking over the bricks that are arranged by the side of the marking. After finishing the path, he hands over the stick and puck to the next player who takes the chance to drive the puck. After the entire players complete their chance, the time was recorded as the score. The team which takes the minimum time to complete the game was declared as the winner.

Backward Running Relay

Equipments

Indian club – 4 and chunnam powder

Description

Based on the number of students divide them into two equal groups. Arrange each group in such a way that the students stand in a row before the starting line. Put the Indian club 10 meters away behind these students and draw a circle around the Indian club. After hearing the whistle of the teacher the first student in each group runs backward goes round the Indian club and returns, then touches the second student in his group and sits down as the last in his row. After the second student in each group runs backwards as done by the first student, returns touched the third student in his group and sits down as the last in his row. Like that other students in his group repeat the same procedure and finish the round till the last student in each group. Whichever group finishes first was declared the winner.

Zig Zag Relay

Equipments

Indian clubs – 10 and Chunnam powder

Description

Divide the students into two equal groups. Arrange the students in each group stand in a line a little behind the starting line. Put first Indian club at a distance of nearly 5 Meters from the first student and the last Indian club likewise at the destination line. After hearing the sound of the whistle of the teacher the first student from each group runs zig zag between the two Indian clubs and finally around the destination line and

touches the second student in his group and sits down last in his row. After that the second student in the each group runs zig zag between the Indian club and finally around the destination line and touches the third student in his group and sits down last in his row. Likewise other students in his group repeat the same procedure and finish the round till the last student in each group. Whichever group finishes first was declared the winner.

Over & Under Passing Relay

Equipments

Volley ball - 2, Indian club - 4 & Chunnam powder

Description

Divide the students into two equal groups. Arrange the students in each group in a row before the starting line. Let the students stay in the standing position. Give one volley ball to the first student of each and every group. After hearing sound of the whistle by the teacher the first student in each group raises his hand above to his head and passes the ball backwards passing it between his hands to the second student in his row. The second student gives the ball to the third student under his legs. Likewise one student raises the ball upwards above his head and then throws it backwards and the next student between his two legs to the next student in his row and repeats the act. Like this other students in each and every group repeat these steps and finish the game. Whichever group finishes first was declared the winner.

Kangaroo Relay

Equipments

Volley ball - 4, Indian clubs - 4 & Chunnam powder

Description

Divide the students into two equal groups. Arrange students in each group stand in a row before the starting line. Draw a destination line in front of the starting line 10 Meters away and put one Indian club there facing every group. Give one volley ball to the first student of each and every group and ask him to keep the ball above his knee but between his two legs. After hearing the sound of the whistle by the teacher the first student in each group while keeping the ball between his two legs takes one jump after another like a kangaroo and goes round the Indian club at the destination line and then transfers the ball to the second student in his group before sitting down as the last boy in his row. Likewise the second student also keeps the ball between his two legs and take one jump after another like a kangaroo and goes round the Indian club in the destination line and transfers the ball to the third student and before sitting down as the last boy in his row. Similarly other students in the group repeat the same steps and finish the game. Whichever group finishes first was declared the winner.

Tunnel Ball Relay**Equipments**

Volley ball - 4, Indian club - 4 & Chunnam powder

Description

Divide the students into two equal groups. Arrange students in each group to stand in a row a little behind the starting line. Draw a destination line in front of the starting line at a distance of 10 meters and put one Indian club straight before every group in the destination line. Give one volley ball to the first student of each group. After hearing the sound of the whistle by the teacher the first student in each group takes the

ball runs forward and goes round the Indian club in the destination line and runs towards his group, throws the ball between the legs to one of his group members. Once the ball reaches the last student of each group then that student takes the ball, runs forward and repeats the same procedure as done by the first student. Similarly other students in the group repeat the same steps and finish the game. Whichever group finishes first was declared the winner.

Ball Bounce Relay

Equipments

Volley ball - 4, Indian club - 4 & Chunnam powder

Description

Divide the students into two equal groups. Arrange students in each group to stand in a row a little behind the starting line. Draw a destination line in front of the starting line at a distance of 10 meters and put one Indian club on it straight ahead of every group. Give one volley ball to the first student of each group. After hearing the sound of the whistle the first student in each group bounces the ball on the ground, moves forward and goes round the Indian club in the destination line, returns to his group and transfers the ball to the second student while he goes and sit down as the last person in his row. The second student repeats all the steps done by the first student. The other students in the group also repeat the same steps and finish the game. Whichever group finishes first was declared the winner.

Driving the Pig to the Market

Equipments

Indian club - 4, Dumbbells- 4, Stick – 2 & Chunnam powder

Description

Based on number of students divide them into two equal groups. Make students in each group stand in a row at the starting line. Draw a destination line at a distance of 10 meters from the starting line and put an Indian club on it for each group for going round it. Now give a stick and dumbbells to the first student in each group. After hearing the sound of the whistle of the teacher the first student from each group puts the dumbbells on the ground, rolls them forward by using the stick and takes them round the Indian club at the destination point and returns to his group, transfers the stick and dumbbells to the second student in his group and sits down as the last student of the row. The second student in the row repeats the same procedure as done by the first student and transfers the dumbbells it to the third student. Likewise the other students in this group repeat the same procedure and finish the game till the last student in each group. Whichever group finishes first was declared the winner.

Dodge Ball**Equipments**

Volley ball – 1 & Chunnam powder

Description

Draw a circle measuring 10 meter in diameter. Divide the students into two equal groups. Make one group stand outside the circle and another inside it. Give a particular time of 5 to 10 minutes to the group which stands outside to throw the ball to these inside the circle so that it hits someone there below the knee. The student who gets hit was declared out and moves out of the circle. The ball was always thrown from the outside by the outside group. After the fixed playing time is over for the outer group, this group

moves inside the circle and the other moves outside. The outside group now repeats the same exercise. Whichever group was able to move more players out of the circle was declared as the winner.

Snatch the Kerchief

Equipments

Kerchief & Chunnam powder

Description

Divide the students into two equal groups. Draw two destination lines at a distance of 10 meter from the groups. Make the students stand on the line. Allot a number to each and every student from number one, onwards. Draw a meters circle one diameter in the middle of the line and put a hand kerchief in the middle of the circle.

The teacher should stand in outside near the circle and call a number. Two students with the same number in both the groups come forward and try to pick up the handkerchief from the ground. The student who snatches the kerchief runs towards his group avoiding the other student from touching him and thus reaches as his team. When this happens, one point was scored by that team. If a student of opposite team was able to touch the student with the handkerchief that boy loses one point which was then awarded to the opposite team. Likewise the teacher will call different numbers to play the game in a particular time. Whichever team scores the largest number of points was declared the winner or whichever the team scores 10 points first becomes the winner.

All –Up and All-Down Relay

Equipments

4 Indian club & Chunnam powder

Description

The group was divided into teams of equal number. Opposite to each team on the turning line, mark a circle one meter in diameter and in each circle keep four Indian clubs standing. At the signal, first player of each team runs forward knocks the clubs down, returns and touches off the second player, who runs forward and sets the clubs up again. The third player knocks them down, and so on. Thus the relay continues knocking and setting the clubs up until all have run. The team finishing first wins.

Potato Race**Equipments**

4 Indian club & Chunnam powder

Description

The group was divided into teams of equal number. Teams stand in files behind the starting line. Between the starting line and the finish line, equal number circles were drawn in front of each team. In each circle one potato is placed. On signal the first player from each team runs forward, picks up the potato from the circle in front of his team, and places it to the finishing line one by one and runs back to touch the second player of his team. The second player runs, pick up the potato, places it in each circle one by one as originally placed and touches the third. The relay continues in the same manner. The team which finishes first wins.

Rope Skipping Relay**Equipments**

Skipping rope & Chunnam powder

Description

Players were divided into teams of equal number and arranged in the files behind the starting line. At the signal, the first player in each team goes to the turning point which is 10 meters in front skipping all the way up and down and hands the rope (about 2.44 meters long) to the next who continues in the same way till the last player finishes at the starting line. The team that finishes first was the winner.

Crab Relay**Equipment**

Chunnam powder

Description

The group was divided into teams of equal number. The teams stand behind the starting line. Each player supports himself hands and feet back towards the floor and feet towards the starting line. In this position he travels to the turning line and returns to the straight line. He touches of the second player who then repeats. The team finishing first wins.

In the Pond on the Bank**Equipment**

Chunnam powder

Description

Arrange the students in a large circle. When the teacher or leader says "In the Pond" the students jump forward with both the legs and when the teacher or leader says, 'on the bank', the students jump backward with both legs. If any student does not perform the correct action according to the teacher's command, the eliminated. Similarly,

if a subject does not move quickly he is also eliminated. The game continues until all but one is eliminated; the last person becomes the winner.

List of Stretching Exercises

1. Neck Stretch
 - a. Side bending (Right/ Left)
 - b. Neck Flexion / Extension
2. Shoulder Stretch
 - a. Cross – Chest Stretch
 - b. Behind the Back Stretch
3. Arms
 - a. Triceps Stretch
 - b. Biceps Stretch
4. Oblique Stretch
 - a. Right Side Stretch
 - b. Left Side Stretch
5. Quadriceps / Hamstring Stretch
6. Adductor Stretch
7. Hip Flexion
8. Ankle Stretch

List of Aerobic Exercises

On the spot marching	Skaters Jump	Mountain Climber Twist
Jumping jack	Long Jump with Jog Back	Squat jump
High knee action	Invisible skipping	
Back kick	Donkey Kick	

TABLE - XVIII

12 Weeks Training Plan for Aerobic Exercise with Stretching Training Group

Week	Training Components	Nos. of Aerobic Exercises	Duration of Training Components with Density (In Minutes)	Nos. of Rep (30 sec) / Set	Total Duration (In Minutes)
Week 1	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	
	Aerobic Exercises	1 to 6	30	4	
	Warm Down	-	10	-	
Week 2	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	
	Aerobic Exercises	1 to 6	30	4	
	Warm Down	-	10	-	
Week 3	Warm up and stretching	1 - 8	10	-	60
	Walking	-	20	-	
	Aerobic Exercises	1 to 6	20	4	
	Warm Down	-	10	-	
Week 4	Warm up and stretching	1 - 8	10	-	60
	Walking	-	18	-	
	Aerobic Exercises	1 to 8	22	3	
	Warm Down	-	10	-	
Week 5	Warm up and stretching	1 - 8	10	-	60
	Walking	-	18	-	
	Aerobic Exercises	1 to 8	22	3	
	Warm Down	-	10	-	
Week 6	Warm up and stretching	1 - 8	10	-	60
	Walking	-	18	-	
	Aerobic Exercises	1 to 8	22	3	
	Warm Down	-	10	-	
Week 7	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	
	Aerobic Exercises	1 to 10	30	2	
	Warm Down	-	10	-	
Week 8	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	
	Aerobic Exercises	1 to 10	30	2	
	Warm Down	-	10	-	
Week 9	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	

	Aerobic Exercises	1 to 10	30	2	
	Warm Down	-	10	-	
Week 10	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	
	Aerobic Exercises	1 to 12	30	1	
	Warm Down	-	10	-	
Week 11	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	
	Aerobic Exercises	1 to 12	30	1	
	Warm Down	-	10	-	
Week 12	Warm up and stretching	1 - 8	10	-	60
	Walking	-	10	-	
	Aerobic Exercises	1 to 12	30	1	
	Warm Down	-	10	-	

PROCEDURE OF DOING AEROBIC EXERCISES

1. On the Spot Marching

Stand straight with elbows bent at a 90-degree angle and feet hip width apart. Bring the right elbow forward at the same time as bring the left knee up. Repeat on the opposite side and keep alternating sides until set was complete.

2. Jumping Jack

This classic cardio move was a great way to warm up or do active rest between ore difficult moves. Start with feet together, core engaged and hands at sides. Now take a jump legs apart and bring arms overhead, clapping above the head. Keep knees bent jump feet back together and bring arms down. Repeat as quickly as possible.

3. High Knee Action

Stand with feet shoulder width and run in place by pulling right knee up toward the chest, then left knee up towards the chest. Continue to alternate as quickly as possible. Make it easier, if running isn't part of game plan, perform this move as a march, using

head, straight. Lift up left leg while keeping the knees bend, so that the thigh is parallel to the floor. Make safe the foot is pointing towards the ceiling. Try and stretch the foot as much as possible without moving upper body and keeping the abs tight. Came back to the original position and repeat the same process with the other leg.

9. Mountain Climber

From a plank position with core tight, run left knee in toward right elbow, then right knee in toward left elbow. Continue to alternate as quickly as possible without hiking the hips. Run knees should be straight in toward the chest.

10. Squat jump

Begin with a standing position with their feet shoulder width apart. Perform a normal squat. As complete the downward motion, jump in the air. As their land, lower the body back to normal squat position to finish rep one. Do 4 sets of 10-15 reps and take no more than 30-60 seconds of rest between each set. They should also kept in mind to keep a steady pace throughout the exercise.

10.12 ADMINISTRATION OF THE TESTS

The investigator held a meeting with the subjects prior to the administration of the tests. The purpose, the significance of the study and the requirements of the testing procedure were clearly explained to them in detail. This was done to remove any ambiguity in their minds regarding the efforts they were expected to put in for the successful completion of the tests.

To assess the variables, the investigator had explained to the subjects about the purpose of the investigation. Clear instructions were given regarding the method of performing each test to them. The researcher demonstrated the tests to enable the

intellectually disable subjects to imitate them. The subjects were asked to respond to these demonstrations as quickly as possible. The scores obtained were tabulated and statistically treated to arrive to meaningful conclusions.

The test procedures of dependent variables of the pre test were strictly followed when the post were administered.

3.12.1. Abdominal Plus Psoas Strength



Figure: 1 Abdominal Plus Psoas Strength

Purpose

In this test the strength of the abdominal and psoas muscles were determined.

Instruction

From the supine position gradually raises his body to the sitting position.

Scoring

The distance from supine to sitting was marked from 0 to 10 and awarded the scores accordingly.

3.12.2. Abdominal Minus Psoas Strength

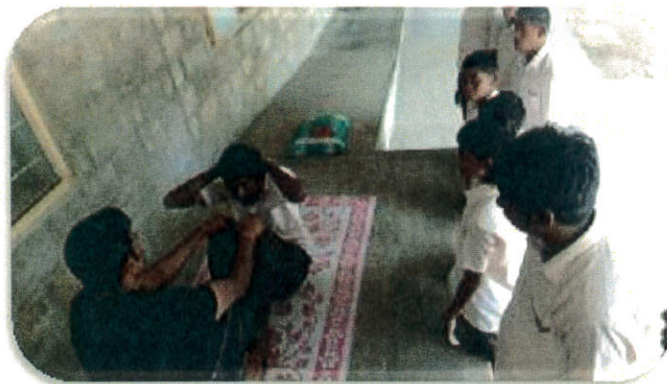


Figure: 2 Abdominals Minus Psoas Strength

Purpose

To test the abdominal muscles

Instructions

The subject's lies supine with hands behind neck and knees bend. The examiner asked the subjects to keep the hands behind the neck and try to roll of into sitting position.

Scoring

The distance from supine to sitting was marked from 0 to 10 and awarded the scores accordingly.

3.12.3. Psoas and Lower Abdomen Strength

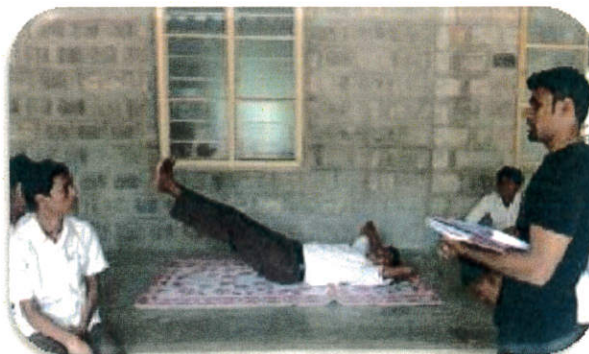


Figure: 3 Psoas and Lower Abdomen Strength

Purpose

To test the strength of the psoas and lower abdominals.

Instructions

The subject lies supine with hand behind neck and leg extended. Except knees to be straight and lift the body and the elbow touches the knee. The count is ten seconds, adding any three syllable word after each number makes the count fairly reliable as to time.

Scoring

Holding for ten full seconds was passing and was marked as 10. Anything recorded as part of the ten seconds that is 4 for four seconds. 7 for seven seconds.

3.12.4 Upper Back Strength.

Figure: 4 Upper Back Strength.

Purpose

Strength of upper back muscles.

Instruction

Subject was in prone lying position with pillow under hip and lower abdomen hand behind neck; examiner holds feet down, raise chest, head and shoulders while examiner counts to ten seconds.

Pass

Position held for 10 seconds

Scoring

0-10 depending on number of second's position in held

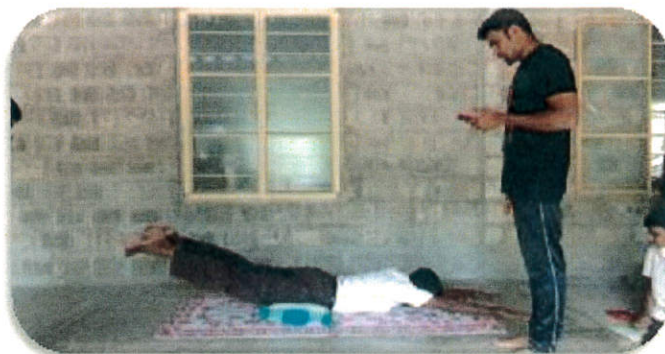
3.12.5. Lower Back Strength

Figure: 5 Lower Back Strength

Purpose

Strength of the Lower back muscles

Instruction

Subject in prone lying position. Feet were raised with knees straight. Hands under the chin. Position held for 10 seconds.

Scoring

0-10 scores were awarded depending on number of second's position held.

3.12.6. Hamstring Muscles Strength

Figure: 6. Hamstring Muscles Strength

Purpose

To test the trunk flexibility.

Instruction

Subject stands erect in bending forward, hand at side, feet together, lean down slowly and touch floor with finger tips, hold for 3 seconds (bouncing is not permitted) examiner holds knees in order to prevent any bend. Floor touch for hold 3 seconds.

Scoring

10 points for touching the floor and holds for 3 seconds. Less than touch was marked by the distance in inches between the floor and the finger tips. Example. Unable to touch the floor by 4 inches would be marked as 4.

3.12.7. Flexibility

Figure: 7. Flexibility (Sit and Reach test in Centimeters)

Purpose

The sit and reach test was used to assess the flexibility of the low back and posterior thigh.

Equipments

Sit and reach test box, score card and pencil.

Procedure

The subjects should warm up 3 to 5 minutes before attempting this assessment. A box with a measurement scale of 23 cm is necessary to perform the test. After warming up, remove your shoes and place both feet flat against the back of the sit and reach box.

Fully extend your legs and moves your feet approximately shoulder width apart. Extend both your arms and place one hand exactly on top of the other on top of the measuring scale. The object of the test is to lean forward as you can lean forward as far as possible while sliding the hand along the scale. A maximum stretch is reached when you can lean forward no farther but can hold your hands stationary for 1 second. A bounce cannot be used to increase the distance of the measure, and measure, and knees should remain straight throughout. The best of three trials is recorded as the final score.

Scoring

Measurements were taken in centimeter to the nearest centimeter. The best performance was recorded as the score. The best of three trails recorded.

3.12.8. Leg Explosive Power



Figure: 8. Leg Explosive Power (Standing Broad Jump in Centimeters)

Purpose

The purpose of the test was to measure the explosive power.

Equipments

Measuring Tape, Chunnam, Pencil and Score sheet.

Procedure

All the medicine balls weighing 3 kg were arranged on an even ground in a semi-circle with a distance of 1.5 m. between the balls. The subject's medicine ball weighing 4 kg was kept 3 m away from these medicine balls. Behind all the medicine balls of 3 kg weight, metallic number plates of 1 sq. foot size were kept, from 1 to 5. Before the start of the test the subjects were asked to stand behind the sixth medicine ball facing toward the opposite direction. On the signal of the number called by the tester subjects turned and ran towards the ball and touched the medicine ball and run back to touch the sixth medicine ball, immediately another number was called by the tester. Similarly, a total of three times the number was called by the tester and the subjects performed accordingly. Before the certain test was administered, one practice trial was given to all the subjects.

Scoring

The time taken to complete the course was noted in seconds. Two trials were given to each subject and the better one was recorded as score.

3.12.10. Differentiation Ability



Figure: 10. Differentiation Ability

Criterion Measures

Backward medicine ball throw test was used to measure differentiation ability.

Purpose

To measure the differentiation ability of the subjects.

Equipments

A Gymnastic Mat size 3X6, One Medicine Ball Weighing 2 kg, Five Medicine Balls weighing 1 kg each, Pencil, Papers and Pad.

Procedure

A gymnastic mat was kept 2 away from the starting line of 40 cm. radius was drawn in the middle of the mat and a medicine ball of 2 kg kept at the centre of the circle. The subjects were asked to stand behind the starting line facing the opposite direction. They were asked to throw ten medicine balls (1kg) over the head to hit the 2 kg ball kept on the mat, one after another by using both the hands. One practice trial was given to all the subjects.

Instructions

1. One overhead throw was permitted.
2. The students were not allowed to look back

Scoring

- a. Medicine ball touching the mat = 1 pt.
- b. Medicine ball touching the circle line = 2pts.
- c. Medicine ball inside the circle = 3 pts.
- d. Medicine ball touching the ball (2kg medicine ball kept at the center of the circle) = 4 pts. Points were decided considering the 1st pitch of the ball. The score of the individuals was the total points scored in all the five throws.

3.12.11. Body Composition (Tanita Body Composition Monitor)



Figure: 11 Stadiometer



Figure: 12 Body Composition

Purpose

To measure the fat mass at right arm, fat mass at left arm, fat mass at trunk, fat mass at right leg, fat mass at left leg and body mass index.

Equipment

A bioelectric impedance tanita body composition monitor 545 analyzer was sophisticated scientific instrument, used in research and analysis.

Procedure

As the bioelectric impedance device measures the resistance of body tissues to the flow of a small electrical signal, the person being measured should not be in contact with any other non-conducting surface, with legs apart and arms away from the body. Some devices require a pair of electrodes are placed on the arm and wrist, and another pair placed on the ankle and foot (usually opposite sides of the body), while other devices simply require you to stand on two foot plates. Bioelectrical impedance assesses the

resistance of body tissues to the flow of a small, simple electrical signal to the body. The proportion of body fat can be computed as the current flows more simply through the parts of the body that are composed usually of water (such as blood, urine & muscle) than it does through the bone, fat or air. It is possible to predict how much body fat a person has by combining the bioelectric impedance measure with other factors such as height, weight, gender, fitness level and age.

Scoring

Measures fat mass at right arm, fat mass at left arm, fat mass at trunk, fat mass at right leg, fat mass at left leg in kilograms and body mass index was measures in scores. www.tanita.com, (2006) and (Body mass index formula $BMI = Wt / (H \times H)$, the persons where M = body weight in kilograms and H = height in meters) (National institutes of health, 1998).

3.13 COLLECTION OF DATA

The data on the selected dependent variables were collected for the pre-test and post-test two days before and after the training programmer respectively. Physical fitness test (abdominal plus psoas strength, abdominal minus psoas strength, psoas and lower abdomen strength, upper back strength, lower back strength, hamstring muscles strength, flexibility, and leg explosive power) were tested on the first day; co-ordinative abilities test (orientation ability and differentiation ability) were tested on the second day; body composition test (fat mass at right arm, fat mass at left arm, fat mass at trunk, fat mass at right leg, fat mass at left leg, body mass index) were tested on the third day.

3.14 STATISTICAL TECHNIQUES

The collected data was analysed with application of 't' test to find out the individual effect from pre to posttests if any. Further analysis of covariance (ANCOVA) was used to determine the significant difference among the treatment means and control group. Whenever the 'F' ratios was found to be significant, where the pair wise comparison was applied to test the significant difference between the paired means. 0.05 level of confidence was fixed for all the variables to test the level of significance.