



Talent Identification Protocols

Table of Content

S.No	Sport	Page Number
1	Athletics	2- 14
2	Archery	15-37
3	Badminton	38-52
4	Basketball	53-68
5	Boxing	69-79
6	Cycling	80-87
7	Fencing	88-96
8	Football	97-109
9	Gymnastics	110-119
10	Hockey	120-135
11	Judo	136-147
12	Kabaddi	148-157
13	Kho Kho	158-166
14	Rowing	167-180
15	Shooting	181-196
16	Swimming	197-205
17	Table Tennis	206-220
18	Volleyball	221-229
19	Weightlifting	230-243
20	Wrestling	244-253



1. Athletics

A. Talent Identification

Test Matrix for

Grassroot Talent

S. No	Sports	Categories	Tests	Measurement
1.	Athletics	Under 14 Under 16	One-foot balance test (eyes open and eyes closed) / standing stork	Seconds
			20m start (U14) / 30m Start (U16) (Best of Two)	Seconds
			Standing long jump	Meters
			vertical jump	Centimeters
			40m obstacle run (U14) / 50m obstacle run (U16)	Seconds
			5-step bounding	Centimeters/Meters
			chest-pass (U14-Girls 1 Kg, Boys 2 Kg)(U16-Girls 2 Kg, Boys 3 Kg) Best of Two	Centimeters/Meters
			cricket ball overhead throw Best of Two	Centimeters/Meters
			1.6km endurance run	Minutes and Seconds

Safety:

The coaches have to ensure that the participants conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough water during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

Test No. 1/2: One-foot balance test (eyes open and eyes closed) / standing stork

Purpose: To estimate motor-skill-level (balance)

Equipment: Stop watch

Procedure: In the first round, the athletes are asked to take their shoes off and move into a standing position, with their hands on the hips, one foot resting against the opposite upper calf (heel touching the knee) and an upright upper body position including a fully extended hip joint. They are performing one attempt with the left and one with the right foot.

For the second round, the athletes are asked to move into the same position, but with their eyes closed. For both variations, the coach measures the time, using the stopwatch, until the athlete is not able to maintain in the stable position any longer (once the elevated foot leaves the opposite leg or the stance leg foot leaves the ground). The exercise should be stopped after one [1] minute.

No. of attempts: One [1] per leg.



Fig 1 . One-foot balance test

Scoring: score is length in seconds between the time the heel is raised and balance is lost. The best of Two trials to be recorded.*

Note: Several athletes can execute the exercise parallels, as long as the coach is able to ensure that they are beginning exactly at the same moment and that he/she is able to measure and note down the correct time for each individual athlete.

Test No. 3: 20m start (U14) / 30m Start (U16)

Purpose: To estimate speed (acceleration).

Equipment: Photo cells / light gate including output device, measuring tape, tape / cone (for marking), and a 45m running course or strip.

Procedure: The coach marks a 20m (for U14 athletes) / 30m (for U16 athletes) straight line with cones and / or tape (preferably tape for a start and finish line). The athletes begin to run exactly 1.00m before the start line (an additional marker / line will be necessary) from a standing part position, with the toes of the front foot being very close to, but not touching the line.

The athletes are asked to accelerate with maximum effort until 5M behind the finish line (an additional cone might be helpful).

The first photocell will be located at the start line, the second photocell at the finish line. The coaches note down the electronic time for both attempts.

No. of attempts: Two attempts are given. A rest of at least four [4] minutes should be given in between the two attempts.

Scoring: Record time in seconds to the nearest tenth of a second.*

Note: Spiked shoes are not allowed during the test.

Test No.4: Standing long jump

Purpose: To estimate power (lower body)

Equipment: Measuring tape, rope / rope for marking

Procedure: The coach marks one line with tape or a rope on even ground (soft but even surface for the landing area, if possible). A measurement tape with the zero-point at the beginning of this line will be installed at the side of the jumping area.

The athletes are asked to move to this line (toes of both feet should be very close but not touching the line), feet shoulder width apart. They progress into a squat position and directly perform a standing long jump with a stable landing on their feet. Arm swing / movement is allowed for the jump.

No. of attempts: Every athlete is allowed to execute two [2] jumps. If an additional jump is necessary due to instable landing, a third attempt will be granted.

Scoring:

The distance covered from starting point to the nearest breaking point (5cm steps on the measurement tape) will be considered for the record.*

Note:

The coaches always downscale the distance to the nearest 5cm mark to save time. A stick might be helpful to estimate the correct length of the jump. The stick then has to be fixed at the landing point (rear heel) with a 90° angle to the measurement point.

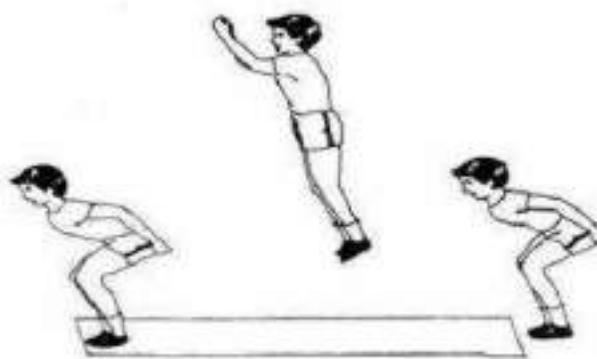


Fig 2. Standing Long Jump

Test No. 5: Standing Vertical Jump

Purpose: Estimate power (lower body)

Equipment: Measuring tape, chair, chalk powder, duster

Procedure: A vertical wall is prominently marked in five [5] centimeter steps upto 3.50 meters.

The athletes dip their fingers in chalk powder and stand side-wise against the wall, keeping the arm raised completely above the head and clap the extended hand marked with chalk on finger straight. The feet have to remain flat on the ground, without raising the heels.

They progress into a squat position and directly perform a vertical jump (counter-movement). The athletes jump as high up as possible to touch the wall.

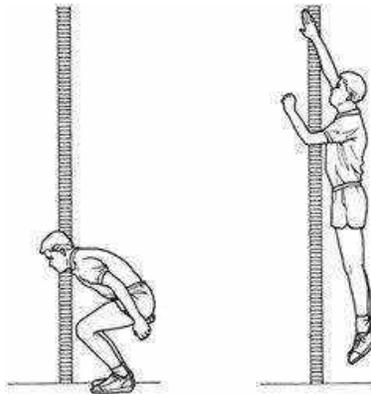


Fig 3. Standing Vertical Jump

No. of attempts: Every athlete is allowed to execute two [2] jumps. If an additional jump is necessary due to instable landing, a third attempt will be granted.

Scoring: Record to the nearest 5 centimeters mark
The reading shall be noted by keeping eyes in level with the chalk mark on the progressed marking. Two attempts are permitted. If an additional jump is necessary, a third attempt will be granted. *

Note: The coaches always down scale the distance to the nearest 5cm mark.

Test No. 6: 40m obstacle run (U14) / 50m obstacle run(U16)

- Purpose:** To estimate speed and motor-skill-level(rhythm)
- Equipment:** Photo cells / light gate, measuring tape, tape / cones (for marking), obstacles (40cm height – tbd)
- Procedure:** The coach marks a 40m (for U14 athletes) / 50m (for U16 athletes) straight line with cones and / or tape (preferably tape for a start and finish line). The athletes begin to run exactly 1.00m before the start line (an additional marker / line will be necessary) from a standing part position, with the toes of the front foot being very close to, but not touching the line.
- The obstacle shall have a height of 40cm (e.g. a banana box or small plastic hurdle). No sharp edges are allowed. The first obstacle will be positioned 10m behind the start line. 4 additional obstacles will be positioned with a distance of 6.50m in between (16.50 / 23.00 / 29.50 / 36.00m) for the U14 category and 5 additional obstacles with 7.00m in between for the U16 (17.00 / 24.00 / 31.00 / 38.00 / 45.00m).
- The athletes are asked to accelerate with maximum effort until 5m behind the finish line (an additional cone might be helpful).
- The first photo cell will be located at the start line, the second photo cell at the finish line. The coaches note down the electronic time for both attempts.
- No. of attempts:** Two attempts are given. A rest of at least four [4] minutes should be given in between the two attempts.
- Scoring:** The score is the total time taken to complete the course in minutes and seconds.*
- Note:** Spiked shoes are not allowed during the test. It makes sense to mark the position of the obstacles with chalk and / or tape in case an athlete hits one of the obstacles.

Test No. 7: 5-step bounding

- Purpose:** Estimate reactive strength
- Equipment:** Measuring tape, tape, / cones (for marking)
- Procedure:** The coach marks one line with tape or a rope on even ground (preferably track or even grass, if possible). A measurement tape with the zero-point at the beginning of this line will be installed at the side of the jumping area.
- The athletes are asked to move to this line (toes of the front foot should be very close but not touching the line), feet shoulder width apart. From this standing start position the athlete tries to jump as far as possible using alternate leg action (e.g. RLRLR or LRLRLR). The athlete is supposed to land in as table position on both feet. Arm movement is allowed during the jumps.
- No. of attempts:** Every athlete is allowed to execute two [2] jumps. If an additional jump is necessary due to instable landing or other reasons, a third attempt will be granted.
- Scoring:** The distance covered from starting point to the nearest breaking point (5 cm steps on the measurement tape) will be considered for the record.*
- Note:** The coaches always down scale the distance to the nearest 5 cm mark to save time. As tick might be helpful to estimate the correct length of the jump. The stick then has to be fixed at the landing point (rear heel) with a 90° angle to the measurement point.

Test No.8: double-arm chest-pass

- Purpose:** To estimate power (upper body)
- Equipment:** 4x 1kg, 4x2kg, 4x3kg medicine ball, measuring tape, tape / cones (for marking)
- Procedure:** The coach marks one line with tape or a rope on even ground (preferably track or even grass, if possible). A measurement tape with

the zero-point at the beginning of this line will be installed at the side of the throwing area.

U14 girls are throwing with the 1kg ball, U14 boys with the 2kg ball. U16 girls are throwing the 2kg ball, U16 boys the 3kg ball.

The athletes are asked to take a ball and move to the line (toes of both feet should be very close but not touching the line), feet shoulder width apart. They move into a semi-squad position with the medicine ball in both hands in front of their chest. Elbows are supposed to stay at shoulder level.

The athletes then perform a chest-pass, trying to push the medicine ball as far as possible. They are supposed to use their legs for the overall body extension to increase power and thereby the velocity of the ball.

No. of attempts: Every athlete is allowed to execute two [2] throws. If an additional throw is necessary due to whatever reason, a third attempt will be granted.

Scoring: The distance covered from zero-point to the landing point of the implement (50cm steps on the measurement tape) will be considered for the record.*

Note: The coaches always downscale the distance to the nearest 50cm mark to save time.

Test No. 9: cricket ball overhead throw

Purpose: To estimate power (shoulder-flexion / elbow extension)

Equipment: 8-12 cricket balls, measuring tape, tape / cones (for marking)

Procedure: The coach marks one line with tape or a rope on even ground (preferably track or even grass, if possible). A measurement tape with the zero-point at the beginning of this line will be installed at the side of the throwing area. The athletes are asked to take a ball and move to the line (toes of the front foot should be very close but not touching the line). They progress into the power position, similar to the standing throw position in javelin throw.

Test No. 10: 1.6km endurance run

- Purpose:** To Estimate anaerobic / aerobic capacity
- Equipment:** Stopwatch, tape / cones (for marking), measuring wheel (if no stadium available)
- Procedure:** The athletes are asked to line up in a standing start position at the 400m start at a regular stadium (400m round). If a stadium is not available, the coach has to ensure that there is another possibility to measure the exact distance of 1,600m (e.g. using a measuring wheel).
After the signal, the athlete has to run the 1.6km as fast as possible.
- No. of attempts:** Only one attempt is given to the athletes.
- Scoring:** The score is the total time taken to complete the course in minutes and seconds.*
- Note:** It might be helpful to pass numbers to the athletes based on their position at the finish. One coach can easily record the time, another one is passing the numbers. Afterwards times and numbers can be matched to avoid irritation and to save time. Athletes have to be instructed to keep their number and not to change it with anyone else.
The 1.6km endurance run should not be conducted in very hot environments.



Fig 4. 1.6 km endurance run

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³

t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	Mg/dL
a.	Bile salts	Mg/dL
b.	Bile pigments & Microscopy	Mg/dL
c.	Sr. Bilirubin	Mg/dL

S.NO	TEST NAME (Anthropometrical)	UNITS
a.	Height	Cm
b.	Weight	Kg
c.	Body Mass Index	Kg.m ⁻²
d.	Arm Span	Cm
e.	Waist Hip ratio	waist(cm)/ hip(cm) *score<1
f.	Sitting Height	Cm



2. Archery

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
2.	Archery	Under 12	Physical Tests	
			Running 1.6 kms	Minutes
			Heart Rate	Count per Minute
			Bow Hand Holding	Minutes/Seconds
			Push Up	Count (Number)
			Sit Up	Count (Number)
			Sit and Reach	Centimeters
			Plank Test	Minutes/Seconds
			Vertical Jump	Meters/Centimeters
			Broad Jump	Meters/Centimeters
			Skill Tests	
			Draw	Points
			Anchor	Points
			Follow Through	Points
			Release	Points
			T-Stance	Points
			Left Elbow	Points
			Mental Ability Tests	
			Concentration	Points
			Reasoning	Points
Reaction	Points			
Command	Points			

Safety

The coaches have to ensure that the participants conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough water during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps

and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

(I) Description of Physical Tests

Test No. 1: Running 1.6 Kms

- Purpose:** To assess speed, endurance, and cardio vascular ability
- Equipment:** Stop watches, 400 m Track, Whistle
- Markings:** The 400m distance is marked on the field or a marked 400m track can be used where curve start is to be given.



Fig. 1. 400 M Athletic Track

- Procedure:** The athletes to stand behind the starting line. On the starting signal, athlete will run 4 rounds of 400 meters distance in as limited time as possible.
- Scoring:** The time to cover 4 rounds x 400 m to nearer 1/10" of a second is recorded as score of the test.

Test No. 2: Heart Rate

- Purpose:** To help in assessing anxiety level during competition.
- Equipment:** Stop watch and a Para Medic
- Procedure:** The para medic measures resting pulse rate in the morning when the athlete gets up and reaches warming up area after refreshing and wash up. The resting pulse measured in one minute.
- Scoring:** Grading to be done as under mentioned:

Physical Parameters of Archers - Heart Rate				
Points	Recurve Boys	Recurve Girls	Compound Boys	Compound Girls
4	<65			
3	66-70			
2	70-75			
1	>75			

Test No. 3: Bow Hand Holding

- Purpose:** To assess holding power of the archer
- Equipment:** Bow, whistle and stop watch
- Procedure:** The athlete will put his bow hand and hold in the draw position. On the count of zero, the coach blows the whistle and the timing of the athlete is noted till the point that they start trembling and not able to hold the position.



Fig.2.Bow Holding Test

Scoring: Total time will be taken on completion of holding. Grading will be given 4-3-2-1(Higher time of holding will be awarded highest grading).

Physical Parameters of Archers - Holding (Seconds)				
Points	Recurve Boys	Recurve Girls	Compound Boys	Compound Girls
4	<60			
3	60-50			
2	50-40			
1	>30			

Test No. 5: Push up

Purpose: To assess strength in shoulder muscles

Equipment: Whistle and stop watch

Procedure: The athlete will lie down on the mat on the floor. On the count of zero, the coach blows the whistle and the timing of the athlete is noted for maximum repetition in one minute.



Fig.3. Push up

Scoring: Total number of push-ups taken in one minute. Grading will be given 1-0.75-0.5-0.25 (Higher number of push-up will be awarded highest grading).

Test No. 6: Sit up

Purpose: To assess strength in abdominal muscles

Equipment: Whistle and stop watch

Procedure: The athlete lies down on the mat on the floor facing upwards and folds his/her legs at the knees. Another athlete holds his/her knees in folded position. On the count of zero, the coach blows the whistle and the timing of the athlete is noted for maximum repetition in one minute.



Fig.4. Sit up

Scoring: Total number of sit ups taken in one minute. Grading will be given 1-0.75-0.5-0.25 (Higher number of sit ups will be awarded highest grading).

Test No.7: Sit & Reach

Purpose: The purpose of this test was to measure the subject's trunk flexibility

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box)

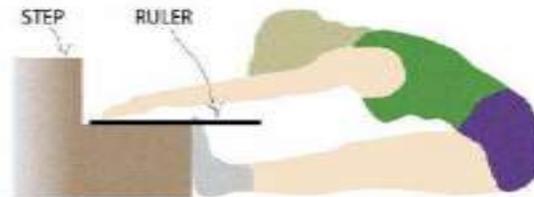


Fig.5. Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: The score is recorded to the nearest centimeter or half inch as the distance reached by the hand. Some test versions use the level of the heel touching the ground as the zero mark, while others have the zero mark 9 inches before the level of the heel touching the ground. Three trials are given and best one is recorded in cm or inches for analysis.

Test No. 8: Plank Test

Purpose: To help in assessing the endurance of the back/core stabilizing muscles

Equipment: Flat and clean surface, stopwatch, recording sheets, pen

Procedure: The athlete is made to raise the body and squat on the elbow. Time taken to hold in the position is noted.



Fig.6. Plank Test

Scoring: Scoring is recorded as given below:

Rating	Time
Excellent	2-5 minutes
Very Good	1-2 minutes
Average	30-60 second
Poor	15-30 second

Test No. 9: Vertical Jump

- Purpose:** To measure the explosive power of lower limbs (legs)
- Equipment:** Measuring Tape, Bench, Chair, Chalk Powder and Duster
- Marking:** A vertical wall is prominently marked in centimeters up to 3.50 meters.

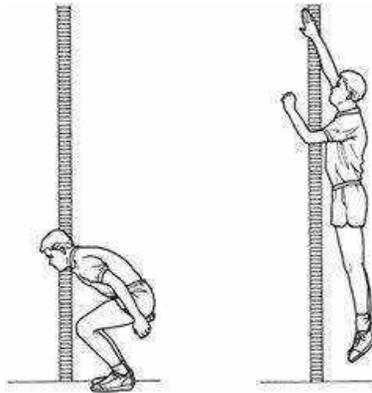


Fig.7. Vertical Jump

- Procedure:** The athlete dips his or her fingers in chalk powder and stands side-wise against the wall, keeping the arm raised completely above the head and claps the extended hand marked with chalk on the wall straight. The athlete jumps as high up as possible and touches the wall. The reading shall be noted by keeping eyes in level with the chalk mark on the progressed marking. Three attempts are permitted.
- Scoring:** The standing reach is subtracted from the jumping reach. The score is recorded to the nearest centimeter. The best of three jumps shall be the score.

Test No. 10: Standing Broad Jump

- Purpose:** To measure explosive power of Legs and body coordination
- Equipment:** Floor/ Ground, Measuring Tape, Marker



Fig.8. Standing Broad Jump

Procedure:

The athlete stands behind a line marked on the ground with feet slightly apart. A two-foot take-off and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject will attempt to jump as far as possible, landing on both feet without falling backwards. Three attempts are allowed.

Scoring:

The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Three attempts, one after the other are given. All the three are marked. The longest distance jumped, the best of three attempts, will be the score of the athlete. The score is recorded to the nearest meters.

PHYSICAL TOTAL POINT - 30

		3 Point	2 Point	1 Point
Running	Boys (2.4km)	9 to 10:45 min	10:45 to 12:00 min	Above 12 min
	Girls(1.6km)	10:45 to 12:30 min	12:30 to 14:30 min	Above 14:30 min
Push Ups	Boys	25& Above	20 to 25	Below 20
	Girls	20-25	20-15	Below 15
Left Hand Holding	Boys & Girls	Above 3min	2 to 3 min	Below 2 min
Sit Ups	Boys	25 & Above	20 to 25	Below 20
	Girls	15 & Above	10 to 15	Below 10
Plank Test	Boys	2-5 min	1-2 min	30 sec
	Girls	1-2 min	45-30 sec	15-30 sec
Flexibility	Boys	6" Touch	4" to 6" Touch	Below 4"
	Girls	5.5 Touch	4" to 5.5" Touch	Below 4"
Height	Boys	5'.8" & Above	Below 5'.8"	Below 5'.5"
	Girls	5'.5" & Above	Below 5'.4"	Below 5'.2"
Vertical Jump	Boys	24 in	18 in	12 in
	Girls	18 in	15 in	12 in
Broad Jump	Boys	72 in	60 in	48 in
	Girls	60 in	48 in	36 in
Heart Rate	Boys & Girls	<65	65-75	>75

(ii) Description of Skill Tests

Purpose: To assess the technique and body structure well suited for Archery

Equipment: The archer is to be observed while shooting to identify the required skills.

Procedure: The coach has to observe the archer while shooting at 30 mts

The following observations should be made: -

Test No. 1: Draw

Points are given based on bio mechanical draw in horizontal plane.



Fig. 9. Draw

Test No. 2: Anchor

Points are given based on smooth anchor, head movement, finger stiffness.



Fig.10. Anchor

Test No.3: T-Stance

Points are given based on the position of elbow at full draw. Check for monkey elbow as well drawing elbow whether in line with arrow or not in a horizontal plane.



Fig. 11. T-Stance

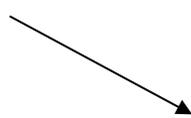
Test No. 4: Release

Points are given based on while release. Release should be smooth without any jerk and body movement.

Test No. 5: Follow Through

Points are given based on whether the archer is maintaining his power from release to follow.

Release



Follow Through

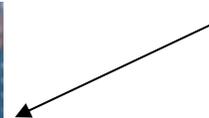


Fig. 12. Release & Follow Through

Test No. 6: Left Elbow

Points are given on monkey arm and normal position of elbow with minimum turning to reduce torque.



Fig. 13. Left Elbow

	Perfect	Need Improvement	Faulty
Draw	5	3	0
Anchor	5	3	0
T Stance	5	3	0
Release	5	3	0
Follow through	5	3	0
Left Elbow	5	3	0

(iii) Description of Mental Tests

Test No. 1: Concentration

Purpose: To assess concentration of an archer and his ability to focus on the execution of shot.

Equipment: Whistle and stop watch Pen/pencil and eraser.

Procedure: The athletes are put in a class or allowed to sit on a floor at a distance apart. Athletes are given the concentration grid sheet. Once the timer starts, beginning from 1 up till 50, athletes have to put a slash through each number in the proper sequence. Once an athlete reaches 50, they have to note down the timing it took them to complete the test.

Scoring: Grading out of 7 points based on time taken.

19	32	13	42	49	17	33	7	38	44
10	47	2	28	5	18	35	27	22	30
15	20	34	11	8	31	1	45	23	12
29	39	25	41	14	21	43	16	6	36
40	50	4	48	26	46	9	37	24	3

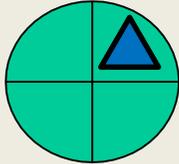
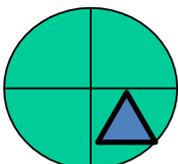
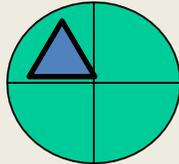
Test No. 2: Reasoning

Purpose: To assess mental reasoning and analytical ability of an archer as he has to judge the wind conditions and aim off accordingly.

Equipment: Whistle and stop watch Pen/pencil and eraser.

Procedure: The athletes are put in a class or allowed to sit on a floor at a distance apart. They need to have their pen or pencil and eraser with them. They are given 7 minutes to answer the 7 questions.

Scoring: Grading out of 7 points based on right answers.

1	2	4	-	8
2	1	3	5	-
3	4	-	16	25
4	3	8	-	24
5	5	10	17	-
6				-
7				

Test No. 3: Reaction test

Purpose: To assess reaction time, hand eye coordination and attention of an archer

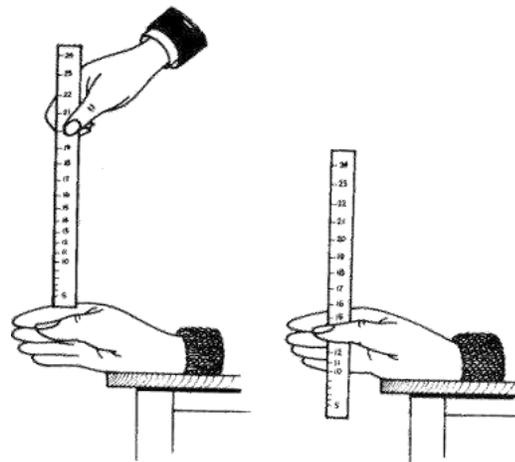
Equipment: Whistle and ruler.

Procedure: The ruler is held by the assistant between the outstretched index finger and thumb of the athlete's dominant hand so that the top of the athlete's thumb is level with the zero-centimeter line on the ruler. The assistant instructs the athlete to catch the ruler as soon as possible after it has been released. The assistant releases the ruler and the athlete catches the ruler between their index finger and thumb as quickly as possible. The assistant is to record the distance between the bottom of the ruler and the top of the athlete's thumb where the ruler has been caught. The test is repeated two more times and the average value used in the assessment.

Scoring: Grading out of 7 points. The score is recorded to the nearest centimeter

(Adapted from Davis, 2000)

Rating	Distance
7	<7.5cm
5	7.5-15.9cm
3	15.9-20.4cm
1	20.4 - 28cm
0	>28cm



Test No. 4: Command Test

- Purpose:** To assess panic state of an archer
- Equipment:** Bow and a target boss & stand
- Procedure:** The athletes are asked to shoot an arrow on command and reaction time noted to shoot the arrow.
- Scoring:** Grading out of 7 points based on reaction

Rating	Timing
Excellent	Within 1 sec
Very Good	>1Sec - <3 Sec
Good	
Average	>3 Sec or Release Post Command

(iv) BASIC REQUIREMENTS OF BODY STRUCTURE

1. Shoulder

- Purpose:** To assess good physique as per Archery
- Observation:** Wider shoulder is required for Archery. The shoulders should not be straight and it should be little down. Because of wider shoulder, back muscle is bigger, there is power in back muscle which helps in smooth draw.



2. Fingers

Purpose: To assess good physique as per Archery.

Observation: Finger should be normal and it should not be very long or short. Long finger is weak and there is no power. Short finger is stiff and there is problem in anchor because of this. Thumb of average size is good. Very small thumb may create problem for Compound archers.



3. Chest

Purpose: To assess good physique as per Archery

Observation: All should have flat chest; Bird chest is not good for archery. In bird chest, chest is not relaxed and there is problem in alignment for shooting.



4. Chin Position

Purpose: To assess good physique as per Archery

Observation: Chin should not be small as small chin creates problem in Anchoring and in future, it creates problem in Aiming at 70 meter.

5. Eye Sight

Purpose: To assess good physique as per Archer

Observation: Those who do not have normal eye vision and wear spectacles, can do Archery without any problem.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



3. Badminton

A. Talent Identification Test Matrix for Grassroot Talent

Sl. No	Sports	Categories	Tests	Measurement units
3.	Badminton	Under 12	Physical Tests	
			Side Step Jump test	Count (Number)
			Modified bass test	Success/Fail
			Nelson Hand Reaction Test	Centimeters & Seconds
			Nelson Foot Reaction Test	Seconds
			20M Shuttle Run Test	Level & Number
			Shoulder Flexibility Test	Centimeters & Grading
			Sit and Reach Test	Centimeter
			Hand Grip Test	Maximum Grip Strength (Kg)
			Vertical Jump	Meters
			Standing Long Jump	Meters
			Push Up	Count (Number)
			Plank Test	Seconds and Minutes

Safety

The coaches have to ensure that the participants conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough water during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

Test No. 1: Side Step Jump Test

- Purpose:** To estimate the agility
- Equipment:** Flat and non-slip floor, with line markings (can use masking tape), tape measure and stopwatch.
- Procedure:** The subject stands at a centre line, then jumps 30cm to the side (e.g. right) and touches a line with the closest foot, jumps back to the centre then jumps 30 cm to the other side, then back to the centre. This is one complete cycle. The subject tries to complete as many cycles as possible in one minute.
- Scoring:** One complete cycle is recorded as 1, and half a cycle as 0.5. The score is expressed as the number of repetitions in one minute. Some normative values are presented below.

	Poor	Fair	Average	Good	High
Male	<33	33-37	38-41	42-45	46+
Female	<37	38-41	42-45	46-49	50+

Test No. 2: Modified Bass test of Dynamic Balance

- Purpose:** To measure dynamic balance
- Equipment:** Adequate floor space, sticky tape for marking floor, measuring tape, stopwatch.
- Procedure:** The course is marked out as illustrated in the diagram. The subject begins by standing stationary on the right foot on the starting point square. The subject then hops to the first tape mark with the left foot

and immediately holds a static position for five seconds. After this time, he then hops to the second tape mark with the right foot and holds a static position for another five seconds. This continues with alternate foot hopping and holding a static position for five seconds at each point until the course is completed. At each point, the sole of the foot must completely cover each tape mark so that it cannot be seen. A period of practice with the procedure and on the course should be allowed.

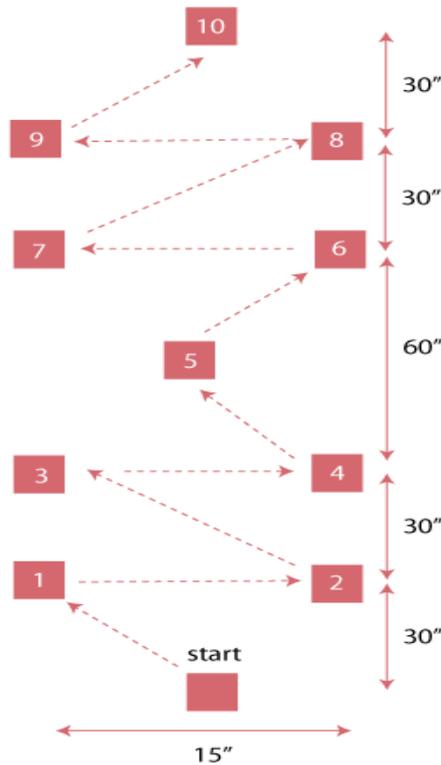


Fig 1. Modified Bass Test

Scoring:

The result is recorded as either a success or fail. A successful performance consists of hopping to each tape mark without touching the floor with the heel or any other part of the body, and holding a static position on each tape mark for five seconds without exposing the tape mark.

Test No. 3: Nelson Hand Reaction Test

- Purpose:** To measure reaction time, hand-eye quickness, and attentiveness.
- Equipment:** 1 meter long ruler or Yardstick, calculator.
- Procedure:** The person to be tested stands or sits near the edge of a table, resting their elbow on the table so that their wrist extends over the side. The assessor holds the ruler vertically in the air between the subject's thumb and index finger, but not touching. Align the zero mark with the subject's fingers. The subject should indicate when they are ready. Without warning, release the ruler and let it drop - the subject must catch it as quickly as possible as soon as they see it fall. Record in meters the distance the ruler fell. Repeat several times (e.g. 10 times) and take the average score.
- Scoring:** The average distance the meter stick fell is to be calculated and then record the time taken by the ruler to fall the measured distance (distance in cm, time in seconds). A table based on the formula - $t = \sqrt{2d / g}$, where d = the distance the ruler fell in meters, g = the acceleration of gravity (9.8 m/s^2), and t = the time the ruler was falling (seconds) is used to calculate this time.

Test No. 4: Nelson Foot Reaction Test

- Purpose:** To measure the foot reaction time of the subjects.
- Equipment:** Nelson Reaction Time Scale, Table or Bench and Wall Space
- Procedure:** The subject will be asked to sit on a table which will be about one inch away from the wall with his shoe off. The subject positioned his foot so that the ball of the foot will be held about one inch from the wall with the heel resting on the table top about two inches from the table edge. The tester held the reaction time stick near the wall so that it hangs between the wall and subject's foot with the base line of the times opposite to the end of the big toe. The subject will be asked to look at the concentration zone and to react as soon as the time stick will be roped by pressing the times stick against the wall with the ball of the subject foot. Each subject will be given twenty trials.

Scoring:

The reaction time of each trial will be recorded from the line just above the end of the big toe when the foot pressed the stick to the wall. Out of 20 trials the average of the middle ten trials ignoring the five fastest and five slowest trials will be taken as the score of this test. The score is recorded to the nearest centimeter

To get the reaction time following formula will be computer independently.

Reaction time (Sec.) = $\frac{2 \times \text{Distance the stick timer falls (in Feet)}}{32}$ (Acceleration due to Gravity)

Test No. 5: 20M Shuttle Run Test

/(BLEEP TEST)

Purpose:

To estimate an athlete's aerobic capacity (VO₂ max).

Equipment:

Flat, non-slip surface, marking cones, 20m measuring tape, beep test audio, audio player, recording sheets.

Procedure:

This test involves continuous running between two lines 20m apart in time to recorded beeps. For this reason, the test is also often called the 'beep' or 'bleep' test. The participants stand behind one of the lines facing the second line, and begin running when instructed by the recording. The speed at the start is quite slow. The subject continues running between the two lines, turning when signaled by the recorded beeps. After about one minute, a sound indicates an increase in speed, and the beeps will be closer together. This continues each minute (level). If the line is reached before the beep sounds, the subject must wait until the beep sounds before continuing. If the line is not reached before the beep sounds, the subject is given a warning and must continue to run to the line, then turn and try to catch up with the pace within two more 'beep'. The subject is given a warning the first time they fail to reach the line (within 2 meters), and eliminated after the second warning.

Scoring:

The athlete's score is the level and number of shuttles (20m) reached before they were unable to keep up with the recording. Record the last level completed (not necessarily the level stopped at).



Fig 2. 20M Shuttle Run Test

Test No. 6: Shoulder Flexibility Test

- Purpose:** To test the flexibility of the shoulder joint, which is important for injury prevention
- Equipment:** Ruler or tape measure.
- Procedure:** The subject should test their left shoulder by standing with their right arm straight up, and then bend the elbow so that the hand hangs behind their head. Keeping the upper arm stationary, the palm between your shoulder blades. Subject should reach around behind them with their left arm so the palm is facing out and should try to touch the fingers of both hands together. The procedure is reversed and repeated with the opposite shoulder.



Fig 3. Shoulder Flexibility Test (Good & Poor)

- Scoring:** The minimum distance between hands is measured and rated as: -
Good- Fingers are touching; **Fair**- Fingertips are not touching but are less than two inches (5cm) apart; **Poor** - Fingertips are greater than two inches (5cm) apart.

Test No. 7: Sit & Reach

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box).

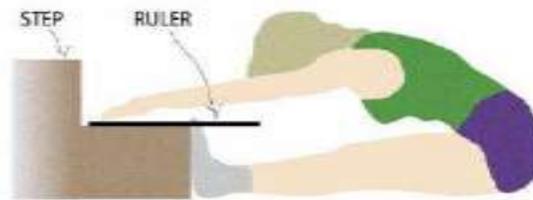


Fig 4. Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: Three trials are given and best one is recorded in cm for analysis. The score is recorded to the nearest centimeter

Test No. 8: Hand Grip Strength

Purpose: To measure the maximum isometric strength of the hand and forearm muscles.

Equipment: Handgrip dynamometer

Procedure: The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle

of the dynamometer is adjusted if required - the base should rest on the first metacarpal (heel of palm), while the handle should rest on middle of the four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed. The subject should be strongly encouraged to give a maximum effort.



Fig 5. Handgrip Test

Scoring: The best result from several trials for each hand is recorded, with at least 15 seconds recovery between each effort.

Test No. 9: Vertical Jump

Purpose: To measure the explosive power of lower limbs (legs).

Equipment: Measuring Tape, Bench, Chair, Chalk Powder, and Duster.

Marking: A vertical wall is prominently marked in centimeters up to 3.50 meters

Procedure: The athlete dips his or her fingers in chalk powder and stand side-wise against the wall, keeping the arm raised completely above the head and clap the extended hand marked with chalk on finger straight. The athlete jumps as high up as possible and touch the wall. The reading shall be noted by keeping eyes in level with the chalk mark on the progressed marking. Three attempts are permitted.

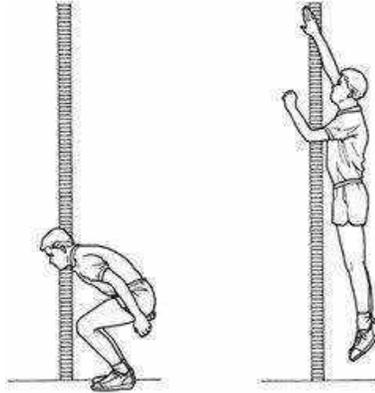


Fig 8. Vertical Jump

Scoring: The standing reach is subtracted from the jumping reach. The score shall be best of three jumps. The score is recorded to the nearest centimeter.

Test No. 10: Standing long jump

Purpose: To estimate power (lower body)

Equipment: Measuring tape, rope / rope for marking

Procedure: The coach marks one line with tape or a rope on even ground (soft but even surface for the landing area, if possible). A measurement tape with the zero-point at the beginning of this line will be installed at the side of the jumping area.

The athletes are asked to move to this line (toes of both feet should be very close but not touching the line), feet shoulder width apart. They progress into a squat position and directly perform a standing long jump with a stable landing on their feet. Arm swing / movement is allowed for the jump. Every athlete is allowed to execute two [2] jumps. If an additional jump is necessary due to instable landing, a third attempt will be granted.

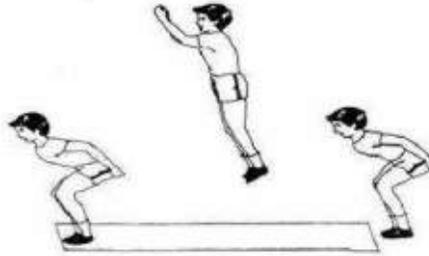


Fig 9. Standing Long Jump

Scoring: The distance covered from starting point to the nearest breaking point (5cm steps on the measurement tape) will be considered for the record. The score is recorded to the nearest meter.

Test No. 11: Push up

Purpose: To assess strength in shoulder muscles.

Equipment: Whistle and stop watch

Procedure: The athlete lies down on the mat on the floor. On the count of zero the coach blows the whistle and the timing of the athlete noted for maximum repetition in one minute.



Fig 10. Push up

Scoring: Total number of push-ups taken. Grading will be given 1-0.75-0.5-0.25 (Higher number of push-up will be awarded highest grading).

Test No. 12: Plank Test

Purpose: To help in assessing the endurance of the back/core stabilizing muscles.

Equipment: Flat and clean surface, stopwatch, recording sheets, pen.

Procedure: The archer is made to raise the body and squat on the elbow. Time taken to hold in the position is noted.



Fig 11. Plank Test

Scoring: Scoring is recorded as given below:

Rating	Time
Excellent	2-5 minutes
Very Good	1-2 minutes
Average	30-60 second
Poor	15-30 second

B. SPORTS SCIENCE

EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³

v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



4. Basketball

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
4.	Basketball	Under 12	Physical Tests	
			30m Standing Start	Time
			Vertical Jump	Centimeter/ Meters
			10 Bound Test	Centimeter/ Meters
			Plank Test	Time
			Sit Ups (Pike Position)	Count (Number)
			Push Up	Count (Number)
			Pull Ups/Chin Ups Test	Count (Number)
			Seated Medicine Ball Throw	Meters
			Illinois Agility Test (Modified)	Time
			YoYo Test IR1/IR2	Meters/Level
			Specific Test	
			Control Dribble Test	Time
			Spot Shooting Test	Percentage (Accurate throws and Timing)
Wall Passing Test	Count/ Number			

Safety

The coaches have to ensure that the participants conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough water during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

Test No.1. 30 Meter Standing Start

- Purpose:** To measure the running speed
- Equipment:** Stop watch, Marker, Flag, Ground/ floor
- Procedure:** The test is to be administered from standing position (standing start). The subject needs to be stand just behind the starting line. On an audible signal he/she has to start running as fast as possible and finish the 30m line.
- Scoring:** Time to be taken in sec. to cover 30 m distances. Two attempts are to be given at 7-10 min. interval and the better performance is to be considered for scoring purpose.

Test No. 2. Vertical Jump Test

- Purpose:** To measure the explosive power of lower limbs (legs)
- Equipment:** Measuring Tape, Bench, Chair, Chalk Powder and Duster
- Marking:** A vertical wall is prominently marked in centimeters up to 3.50 meters
- Procedure:** The athletes dips their fingers in chalk powder and stand side-wise against the wall, keeping the arm raised completely above the head and clap the extended hand marked with chalk on finger straight. The athlete jumps as high up as possible and touch the wall. The reading shall be noted by keeping eyes in level with the chalk mark on the progressed marking. Three attempts are permitted.

Scoring: The standing reach is subtracted from the jumping reach. The score shall be best of three jumps. The score is recorded to the nearest centimeter.

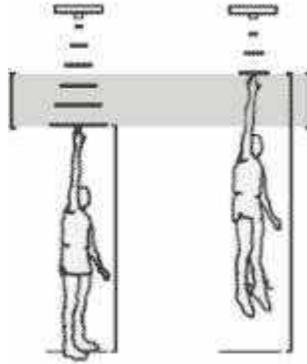


Fig. 1 Vertical Jump

Test No.3. 10 Bound Test

Purpose: To measure the explosive power of lower limbs

Equipment: Measuring Tape, & Chalk Powder. Marking: A start line 1.22 m is marked

Procedure: The athletes stand just behind the start line and executed consecutive 10 bounds without break. Two attempts are permitted.



Fig 2. 10 Bound Test

Scoring: The maximum distance cover is measured as score. The score is recorded to the nearest meter.

Test No.4. Plank Test

- Purpose:** The plank test measures the control and endurance of the back/core stabilizing muscles
- Equipment:** Flat and clean surface, stopwatch, recording sheets, pen
- Pre-test:** Explain the test procedures to the subject. Perform screening of health risks and obtain informed consent. Prepare forms and record basic information such as age, height, body weight, gender and test conditions. Perform a standard warm-up
- Procedure:** The aim of this test is to hold an elevated position for as long as possible. Start with the upper body supported off the ground by the elbows and forearms, and the legs straight with the weight taken by the toes. The hip is lifted off the floor creating a straight line from head to toe. As soon as the subject is in the correct position, the stopwatch is started. The test is over when the subject is unable to hold the back straight and the hip is lowered.



Fig 3. Plank Test

- Scoring:** The maximum time the plank is held by the athlete

Test No.5. Sit ups (pike position)

- Purpose:** To measure explosive Abdominal Strength
- Equipment:** Floor/ Ground, Stop Watch

Procedure:

The athlete assumes back lying position on the mat keeping her arms over the head. On the command "GO" he/she energetically lifts the legs and upper body and touches his/her feet with the hands. This is called sit ups in "V" position. He/she performs maximum sit ups in picked position in 30 seconds. The time keeper starts taking time on the command "GO" and stops the watch at 30 seconds.



Fig. 4 Sit Ups

Scoring:

Maximum number of Sit Ups performed in 30 seconds will be his/her score.

Test No. 6: Push Up

Purpose:

The push-up fitness test (also called the press up test) measures upper body strength and endurance.

Equipment:

Floor mat, metronome (or audio tape, clapping, drums), stopwatch, wall, chair.

Pre-test:

Explain the test procedures to the subject. Perform screening of health risks and obtain informed consent. Prepare forms and record basic information such age, height, body weight, gender and test conditions. Perform a standard warm-up.



Fig. 5 Push Up

Procedure:

A standard push-up begins with the hands and toes touching the floor, the body and legs in a straight line, feet slightly apart, the arms at shoulder width apart, extended and at a right angle to the body. Keeping the back and knees straight, the subject lowers the body to a predetermined point, to touch some other object, or until there is a 90-degree angle at the elbows, then returns back to the starting position with the arms extended. This action is repeated, and the test continues until exhaustion, or until they can do no more in rhythm or have reached the target number of push-ups.

Scoring:

Record the number of correctly completed push-ups in 1 minute.

Test No.7: Pull Ups / Chin Ups Test

Purpose:

To measure strength endurance of arms and shoulders (Upper body).

Equipment:

Horizontal bar, Stop watch, Paper and Pencil



Fig: 5: Chin up for boys and Chin up hold position for girls

Procedure: Step up to the bar and grasp it with the palms facing athlete. Arms should be fully extended. Cross ankles and bend knees, Pull the body up until the elbows are completely bent and close to the body, reaching the chin to the bar. Lower body until the arms and legs are fully extended in the starting position. This counts one chin up for men players. A player should perform as many repetitions as he can.

For women, step up to the bar and grasp it with the palms facing athlete. Arms should be fully extended. Cross ankles and bend the knees, Pull the body up until the elbows are bent at 90°. In case of women the maximum time a girl hold in that position is recorded and that becomes her score.

Scoring: For women the maximum time a girl holds in that position is recorded and that becomes her score, for Boys as many repetitions as possible.

Test No.8. Seated Medicine Ball Throw

Purpose: This test measures upper body (arm) strength and explosive power.

Equipment: 2 kg medicine ball for girls and 3kg medicine ball for boys, tape for measurement.

Procedure: The athlete sits on the floor with his legs fully extended in a wide V position. The ball is held with the hands behind the shoulder. The forearms are bent from elbow, positioned parallel to the ground. The athlete throws the medicine ball vigorously as far straight forward as he can while maintaining the back straight.



Fig:6. Seated Medicine ball throw

Scoring: The maximum distance in meter out of two throws will be recorded.

Test No.9: Illinois Agility Test (Modified)

Purpose: To test running agility

Equipment: Flat non-slip surface, marking cones, stopwatch, measuring tape, timing gates (optional)

Procedure: The athlete has to stand at the start point, on the command “Go” he/she has to run up to 10 meters then shuffle towards right side for 5 meters then again, he/she has to move in backward running for 10meters.

The athlete has to run in zig zag manner between the cones up to 10 meters then shuffle 5 meters towards right then the athlete has to turn around and run 10 meter up to finishing line)



Fig7. Illinois Agility Test (Modified)

Score: The minimum time to be considered for scoring

Test No.10: Testing of intense intermittent exercise capacity

A test of the ability to perform Basketball specific repeated high intensity exercise.(Aerobic- Anaerobic Capacity)

Purpose: To evaluate a player's capacity to recover after repeated intense exercise of a similar nature as in a Basketball game.

Equipment: The description of the tests and test signals are provided in a CD-rom. To perform the test a CD-player, a tape measure, markers/cones, a stop watch and a pencil are needed.

Markings: Two markers are placed on the ground exactly 20 m apart (two lines can also be used) and a third marker is placed 5 m behind the start marker.

Test Course of the Yo-Yo Intermittent Recovery Test

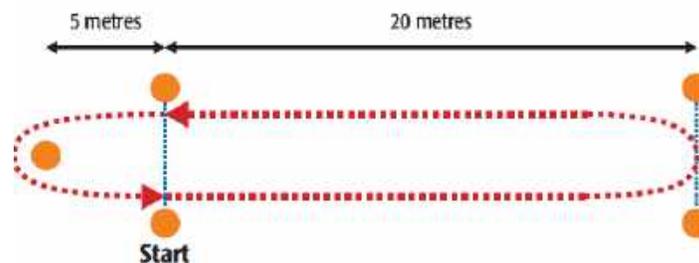


Fig.8: YoYo Intermittent Recovery test

Procedure: Yo-Yo IR test last for 5-15 minutes of running and consists of 2x 20 meters interval of running interspersed by regular short rest periods 10 sec. The CD -rom that follows the Yo -Yo test package provides the information about how to perform the test and gives the signal to control the speed. Briefly the player runs forward 20 meters at a speed, so that the player reaches the 20-meter marker exactly at the time of the signal. A turn is made at the 20-meter markers and the player runs back to the starting marker which has to be reached at the time of the next signal.

Then the player has a 10- second break running slowly around the third marker placed 5 meters behind. If the players run too quickly, he/she must wait at the marker until the next signal. It is recommended that that the players upon turning switches between left and right foot to avoid one sided load on the body. The course is repeated until failure to complete the shuttle run in time on two occasions. The first time the start marker is not reached a warning is given (yellow card) and the second time the test is terminated (red card). The last running interval that a player has completed before being excluded from the test is noted and the test result is expressed as the total running distance covered in the test.

Scoring: Test result is expressed as total running distance covered and the same can be converted to VO₂ max values by using the prediction formula given below:-

Formula to calculate Predicted Vo₂ Max from Yo-Yo Intermittent Recovery test.

$$YY1R1:Vo_2 \text{ Max (ml/kg/min)} = IR1 \text{ distance (m)} \times 0.008 + 36.4$$

$$YY1R2:Vo_2 \text{ Max (ml/kg/min)} = IR2 \text{ distance (m)} \times 0.0136 + 45.3$$

Specific Test

Test No.1. Control Dribble Test

Purpose: To measure the dribbling ability.

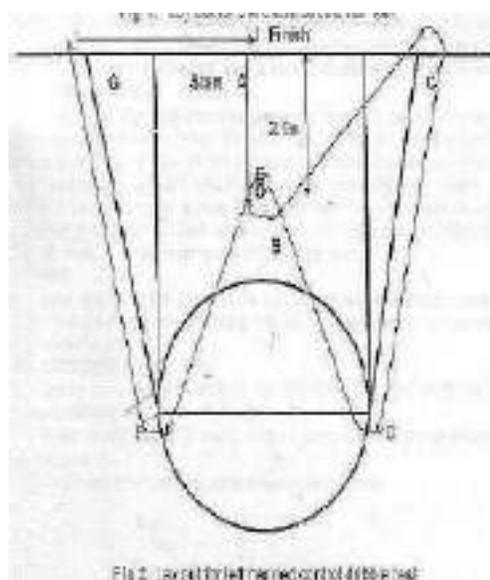
Equipment/Facilities: An obstacle course marked by six cones will be set up in restricted area (Key area, Three second area) of a regular basketball court as shown in Figure below.

Procedure: Three trials will be given, the first is a practice trial and the last two are scored for the record. The performer starts with the ball on his / her non-dominant hand side at cone A. On the signal "Go" the performer will dribble with non-dominant hand to the non-dominant hand side to the middle cone B. The performer will then proceed to follow the course using the proffered hand, changing hands as deemed appropriate until the finish line is crossed by both feet.

Scoring: The score of each trial will be elapsed time required to legally complete the course. Scores should be recorded to the nearest hundredth of a second for each trial. The final test score will be the least time out of the two trials.

Violations/ penalties:

- i. If the performer does ball handling infractions (travelling, double, dribble) the trials will be stopped and the performer has to return to starting point and begin the trial again.*
- ii. The performer and the ball has to remain outside the cone (this includes dribbling the ball either inside or over the cone). If there was failure of this, the trial will be stopped and the performer has to return to start and begin again.*
- iii. If the performer fails to begin at the point in the course where control was last the trial will be stopped and the performer has to return to start and begin again.*



Test No.2. Spot Shooting Test

Purpose: To measure the shooting ability.

Equipment / Facilities: A regular basketball court as shown in Figure and Basket balls.

Procedure: Players have to make 40 throws from 10 spots: 4 series with 10 throws in each one in minimum time. Percentage of accurate throws and timing to be considered. Spots are marked on the field according to the figure 3. Spots 1,2,9,10 are on the line, parallel to the base line. Spots 3,4,7,8 are on the 45 lines to the base line to the left and right from the basket. Spots 5,6 are on the line, perpendicular to the base line. Distance from the basket centre projection on the ground to spots 1, 3,5,7,9, is 4, 5 meters. To the spots 2, 4, 6,8,10 are 6 meters. Each set of 10 throws should be acted in the strict order of spots 1, 2,3,4,5,6,7,8,9,10. The player should collect the ball after each throw by himself and come to the next spot dribbling the ball.

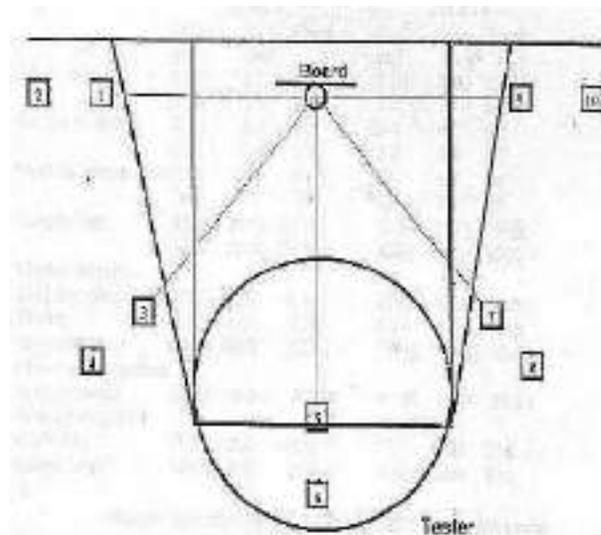


Fig 3. Lay out for the spot shooting test

Test No.3. Wall Passing Test

Purpose: To measure the passing ability.

Equipment/ Facilities: There will be six squares of 60 cm. each, marked on the wall so that the base of the squares is either 1.55 m or 0.9 m above the floor at a distance of 2.50 m from the wall as shown in Figure below.

Procedure: There will be three trials of 30 seconds each. The first trial is considered as a practice and the last two are recorded. Number of passes counted for 30 seconds. The subject (with a ball) stands behind the restraining line and face the target on the far left (A). On the signal "Go" the performer chest passes to first target recovers the rebound while moving to a location behind the second and behind the restraining line and chest pass at target B. This pattern continues until target F is reached where two chest passes are executed following, which the performer then passes to E, repeating the sequence by moving towards the left. The stopwatch will also be started on the signal "Go" and on completion of 30 seconds, the watch will be stopped. Number of hits made on the target will be counted.

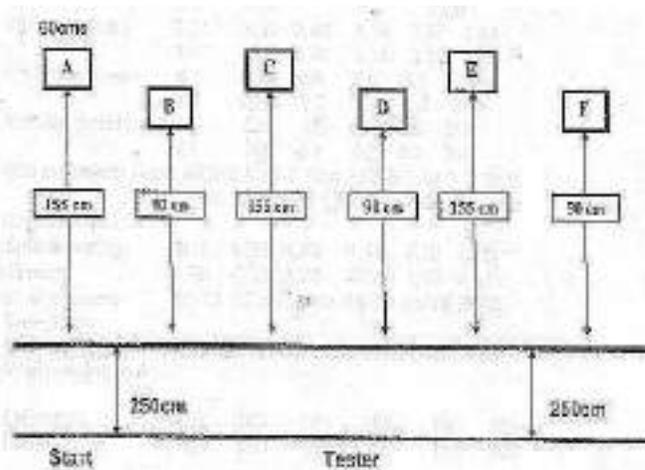


Fig 4. Layout for the wall passing test
Norms and standards for Basketball Players (Men)

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³

s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1

BOXING FEDERATION OF INDIA

5. Boxing

A. Talent Identification Test Matrix for Grassroot Talent

S.No.	Sports	Categories	Tests	Measurement Units
5.	Boxing	Under 12	Physical Tests	
			800 Mtr Run	Minutes
			Hand Grip	Maximum Grip Strength (Kg)
			Medicine Ball Throw	Meters
			Standing Vertical Jump	Meters/Centimeters
			30 Mts Flying Start Sprint	Seconds
			Harres Test for Agility	Minutes
			Bend & Reach	Centimeters

Safety

The coaches have to ensure that the participants conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough water during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

Test No. 1: 800 Mtr Run Test

Purpose: The objective of 800 Mtr run is to monitor the aerobic capacity.

Equipment: 400 Mtr Track, Stopwatch.

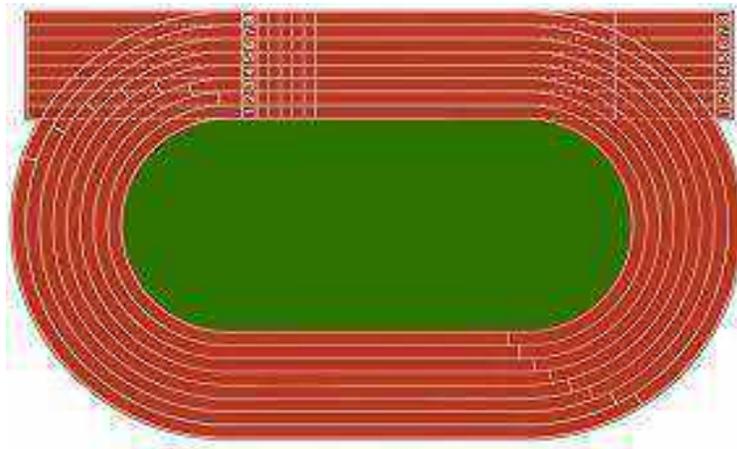


Fig 1. 800 Mtr Run Test

Procedure: The aim of this test is to complete the 800 meter course in the quickest possible time. To start, all participants line up behind the starting line.

Scoring: The time to cover 2 rounds x 400 m to nearer 1/10" of a second is recorded as score of the test.

Test No. 2: Hand Grip Test

Purpose: (Left/Right) for hand strength.

Equipment: Hand Grip Dynamometer.



Fig 2. Hand Grip Test

Procedure: The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle of the dynamometer is adjusted if required - the base should rest on the first metacarpal (heel of palm), while the handle should rest on middle of the four fingers.

Scoring: The best result from several trials for each hand is recorded, with at least 15 seconds recovery between each effort.

Test No. 3 Medicine Ball Throw Test

Purpose: (while sitting Chest Throw) for Upper body strength. The objective is to measure back and explosive strength of the upper body.

Equipment: Mini Basketball/Medicine Ball, Measuring tape, One meter diameter circle.



Fig 3. Medicine Ball Throw Test

Procedure:

- Sit on the ground next to the tape measure with your back against a wall and your head slightly off the wall.
- Hold the med ball at your chest.
- Explosively throw the ball at a 45-degree angle as far as you can. Drive the med ball; do not throw it.

Scoring: The maximum distance in meter out of two throws will be recorded. The score is recorded to the nearest meters.

Test No. 4 Standing Vertical Jump Test

Purpose: Standing Vertical Jump for Lower body strength.

Equipment: measuring tape or marked wall, chalk for marking wall (or Vertec or jump mat).



Fig 4. Standing Vertical Jump Test

Procedure:

- Stand with your side to a wall
- With your feet flat on the ground, reach the arm closest to the wall as high as possible.
- Mark the highest spot you can reach.
- From the same standing position, jump and hit the wall at the highest point of your jump

Scoring: The standing reach is subtracted from the jumping reach. The score shall be best of three jumps. The score is recorded to the nearest centimeters.

Test No. 5. 30 Mts Flying Start Sprint Test

Purpose: For Speed.

Equipment: Measuring tape or marked track, stopwatch or timing gates, cone markers, flat and clear surface.

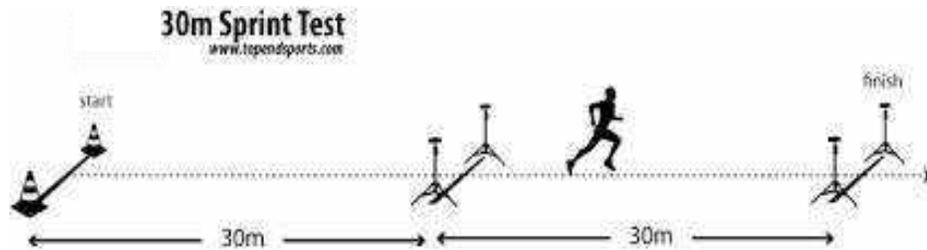


Fig 5. 30 Mts Flying Start Sprint Test

Procedure: Set up cones at 0, 30m and 60m along a straight line, and timing gates if available at 30m and 60m. The test involves a 30m acceleration area to enable the runner to get up to their maximum speed, then maximal sprinting over 30 meters.

Scoring: Two trials are allowed, and the best time is recorded to the nearest two decimal places. The timing starts from when the athlete's torso passes through the first timing gate, or by stopwatch when they pass the 30m cone, and finishes at the 60m cone marker.

Test No. 6, Harres Test for agility Test

Purpose: To determine the agility of the athlete.

Equipment: A soft carpet, a cone, three hurdles and a taped starting line of one meter.

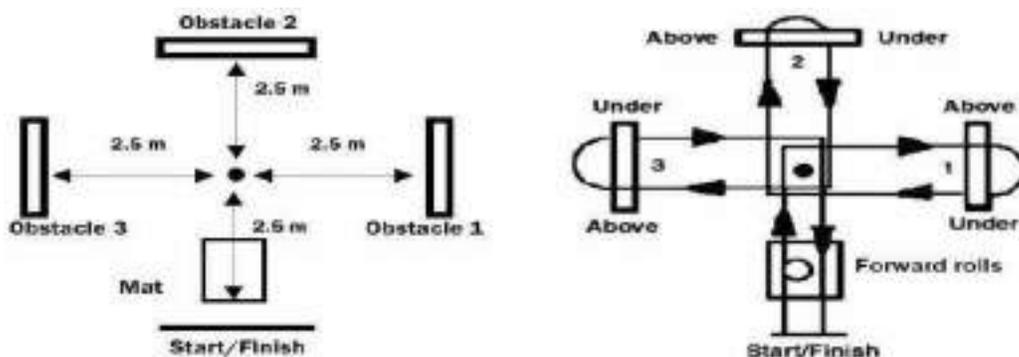


Fig 6. 30 Harres Test for agility Test

Procedure: You will need a soft carpet, a cone, three hurdles and a taped starting line of one meter, the center of which should lie just in front of the cone. The height of the hurdles must be adapted to the respective test person's branch height (i.e. so that the height of the hurdle, when the test person stands with each leg on either side of the hurdle, reaches to the branch.) The support legs of the hurdles must be turned inwards in the path. The test person should not touch the hurdles, either during jumps or crawling. If the hurdles are knocked over or moved, the test is not approved.

Be sure to move the carpet away after the forward roll so that you do not slip on it when rounding the cone or at the finish. Three attempts are allowed.

1. Start behind a line and make a forward roll on the carpet.
2. Run forward and then turn 90 degrees around the cone to the left.
3. Jump over hurdle 1 and crawl back under it.
4. Round the cone and then turn 90 degrees to the left.
5. Jump over hurdle 2 and crawl back under it.
6. Round the cone and turn 90 degrees to the left.
7. Jump over hurdle 3 and crawl back under it.
8. Round the cone and turn 90 degrees to the left.
9. Run through the finish line (i.e., the same as the start line).

Test No. 7 Bend & Reach Test

Purpose: For Flexibility.

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box).



Fig 7 Bend & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor. The tester may assist by holding them down.

Scoring: The score is recorded to the nearest centimeter or half inch as the distance reached by the hand. Some test versions use the level of the heel touching the ground as the zero mark, while others have the zero mark 9 inches before the level of the heel touching the ground. Three trials are given and best one is recorded in cm or inches for analysis.

B. SPORTS SCIENCE

EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³

v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



Cycling Federation of India

6. Cycling

A. Talent Identification Test Matrix for Grassroot Talent

S.No.	Sports	Categories	Tests	Measurement Units
6.	Cycling	Under 12	Physical Tests	
			Standing Board Jump	Meters/Centimeters
			Standing Vertical Jump	Meters/Centimeters
			1600 meters endurance run for boys/800 meters endurance run for girls	Minutes
			Watt bike Test	Watt

Safety

The coaches have to ensure that the participants conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough water during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

Test No. 1. Standing Broad Jump

Purpose: To find the maximum muscle power.

Equipment:

- A flat jumping area at least 20 feet in length.
- A tape measure at least 10 feet long duct tape or masking tape.

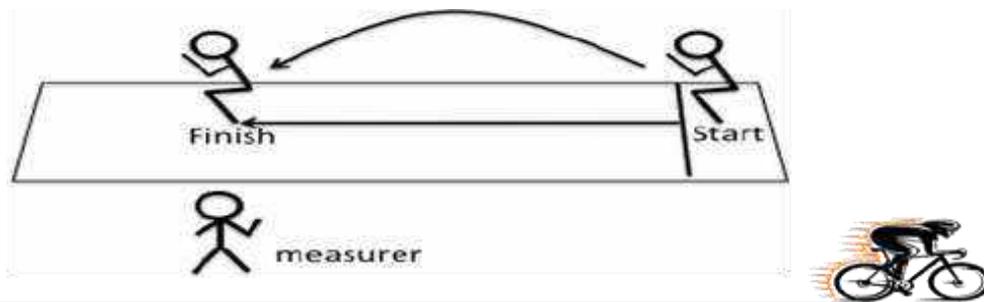


Fig 1. Standing Broad Jump

Procedure:

- Place a 2- to 3-foot (0.6-0.9 m) length of tape on the floor to serve as a starting line.
- The athlete stands with the toes just behind the starting line.
- The athlete performs a countermovement and jumps forward as far as possible.
- The athlete must land on the feet for the jump to be scored. Otherwise the trial is repeated.
- A marker is placed at the back edge of the athlete's rearmost heel, and the tape measure determines the distance between the starting line and the mark.
- The best of three trials is recorded to the nearest 0.5 inch or 1 cm.

Scoring: The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Three attempts, one after the other are given. All the three are marked. The longest distance jumped, the best of three attempts, will be the score of the athlete. The score is recorded to the nearest meter.

Test No.2: Standing Vertical Jump

Purpose: To find the maximum muscle power.

Equipment:

- A smooth wall with a ceiling higher than the highest jumper's jump height
- A flat floor with good traction
- Chalk of a different color than the wall.
- Measuring tape or stick

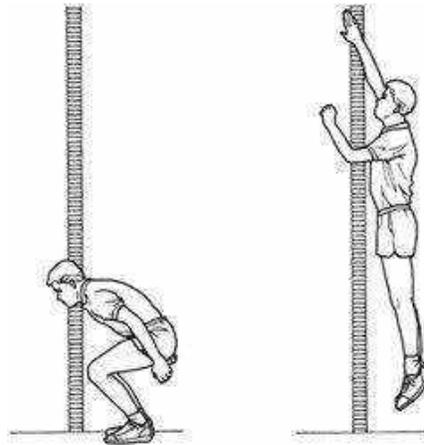


Fig 2. Standing Vertical Jump

Procedure: (Using a Wall and Chalk)

- a) The tester rubs chalk on the fingertips of the athlete's dominant hand.
- b) The athlete stands with the dominant shoulder about 6 inches (15 cm) from the wall and, with both feet flat on the floor, reaches as high as possible with the dominant hand and makes a chalk mark on the wall.
- c) The athlete then lowers the dominant hand and, without a preparatory or stutter step, performs a countermovement by quickly flexing the knees and hips, moving the trunk forward and downward, and swinging the arms backward. During the jump, the dominant arm reaches upward, while the non-dominant arm moves downward

relative to the body.

d) At the highest point in the jump, the athlete places a second chalk mark on the wall with the fingers of the dominant hand using a swiping motion of the fingers. The score is the vertical distance between the two chalk marks.

e) The best of three trials is recorded to the nearest 0.5 inches

No. of attempts: Every athlete is allowed to execute two [2] jumps. If an additional jump is necessary due to instable landing, a third attempt will be granted.

Scoring: The standing reach is subtracted from the jumping reach. The score shall be best of three jumps. The score is recorded to the nearest centimeter.

Test No. 3: 1600 M endurance run for boys/ 800 m endurance run for girls

Purpose: To estimate the aerobic capacity

Equipment: For 1600M, Stopwatch, tape / cones (for marking), measuring wheel (if no stadium available) and for 800M, oval or 400M running track, stopwatch, recording sheets.

Procedure: The 1600M is done for boys and here the athletes are asked to line up in a standing start position at the 400M start at a regular stadium (400M round). If a stadium is not available, the coach has to ensure that there is another possibility to measure the exact distance of 1,600M (e.g. using a measuring wheel). After the signal, the athlete has to run the 1.6km as fast as possible. Only one attempt is given to the athletes. In case of the 800M run for girls, the test is to complete the 800-meter course in the quickest possible time. To start, all participants line up behind the starting line. On the command 'go,' the clock will start, and they will begin running at their own pace. Cheering or calling out the elapsed time is also permitted to encourage the participants to achieve their best time.

Scoring: The coach records the results using his / her stopwatch. The total time taken to complete the distance is recorded. For 1600M, minimum 06:00 Min. – 00 Points and 1 point each on securing 5 sec. faster. For 800M, minimum 03:45 Min. - 00 Points and 1 point each on securing 5 sec. faster.



Fig3. 1600M endurance run

Test No. 4: Watt bike Test

Purpose: To estimate the power peak, power average, power mass and Cadence average.

Equipment: Watt bike Cycle

Procedure: The tests cover the full range of fitness levels and include procedures for both sub-maximal and maximal testing.

6 Sec. test – 4 Minute recovery

6 Sec. test – 4 Minute recovery

30 sec. test – 5:30 minute recovery

4-minute Test



Fig 4. Watt bike Cycle Test

B. SPORTS SCIENCE

EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³

v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



7. Fencing

Description of Talent Identification Tests

Test No. 1: Standing Broad Jump

- Purpose:** To measure the Explosive Strength of lower leg.
- Equipment:** Commercial Long Jump Landing Mats to measure distance jumped/ Measuring Tape, non-slip floor for takeoff, and soft-landing area preferred. The take off line should be clearly marked.



Fig 1. Standing Broad Jump

- Procedure:** The athlete stands behind a line marked on the ground with feet slightly apart. A two-foot takeoff and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backwards. Three attempts are allowed.
- Scoring:** The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Record the longest distance jumped, the best of three attempts. The score is recorded to the nearest meter.

Test No.2: Medicine Ball Put

- Purpose:** To measure the Explosive Strength of Arms

Equipment: Measuring Tape

Procedure: The athlete sits on the floor with his legs fully extended, feet 24 inches (~60 cm) apart and with the back against a wall. The ball is held with the hands on the side and slightly behind the centre and back against the centre of the chest. The forearms are positioned parallel to the ground. The athlete throws the medicine ball vigorously as far straight forward as he can while maintaining the back against the wall. The distance thrown is recorded.

Score: The distance from the wall to where the ball land is recorded. The measurement is recorded to the nearest centimeter. The best result of three throws is used.



Fig 2. Medicine Ball Put

Test No.3: Forward Bend and Reach

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: A Specified marked box

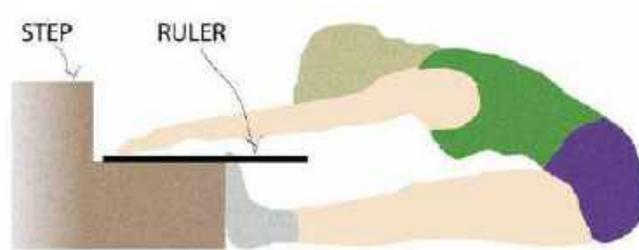


Fig 3: Forward bend and reach test

- Procedure:** The player was asked to sit down keeping his leg straight and heel together. The sole of the feet should touch the box as shown in diagram. He was asked to bend the trunk forward, with fingers in the front of the scale. The subject then slowly tried to reached forwards as much as possible, the fingertips of both hands moved parallel to each other and equally forward on scale and hold the position for 2 seconds. He was not permitted to flex their knees.
- Scoring:** Three trials were given and best one was recorded in cm for analysis.

Test No.4: 30 Meter Flying Start

- Purpose:** To measure the maximum speed.
- Equipment:** Electronic Stop Watch, Flag pole (Six), Measuring Tape and 45 meters running course or strip. The running strip should be firm and non-slippery.
- Marking:** The distance of 45 meter is divided into two zones of 15 meters and 30 meters as shown in the diagram – 1. That is DE (15 m) and EF (30 m). Take radius of 30 meters and mark an arc from point “E”. Mark another arc of 30 meters from point “F” and intersecting at point “C”. Join CE and extend to A’ and join CF and extend to B’. Fix flags at all these seven points.

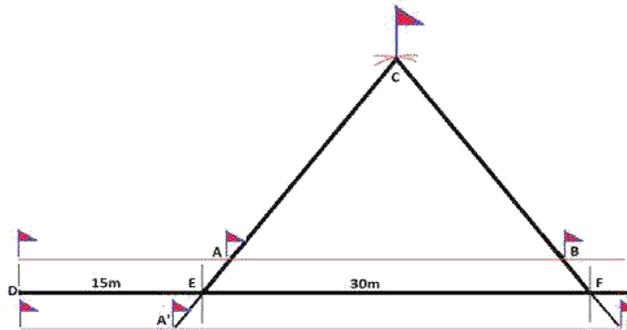


Fig 4. 30 m Run (Flying Start)

Procedure: The athlete stands behind the line “D” and on signal accelerates and crosses the line “E” with extreme possible speed and also cross the line “F” with same speed. Athletes are not permitted to run with spikes. Two trials are permitted.

Scoring: The time keeper stands on point “C” and when the athlete reaches in the line with flags “A-A” and “E” line he starts the watch and when the torso of the athlete comes in the line “B-B” and cross “F” stops the watch. The time is then recorded from the watch in Sec.

Test No. 5: 10 X 6 Shuttle Run

Purpose: To determine the agility of the athlete.

Equipment: Stop watch, lime powder and a running course of 10 meters. Surface of the course should be non-slippery.

Marking: 10 meters of distance is marked by two parallel lines of 5 meters each.

Procedure: The athletes (2 together) stand behind the starting line. On the command of starting signal “GO”, athletes run faster, go nearest to the other line and touch it with the one hand, turn and come back to starting line, touch it with hand, turns and repeat it for a total of 5 times and 6th time, run over the line as fast as possible. Two chances are permitted.

Scoring: The better time taken by the athlete to complete the course of 6 X10 meters to the nearest 1/ 10 of a second is recorded as score of the test. The better attempt out of the two is considered for scoring purpose.

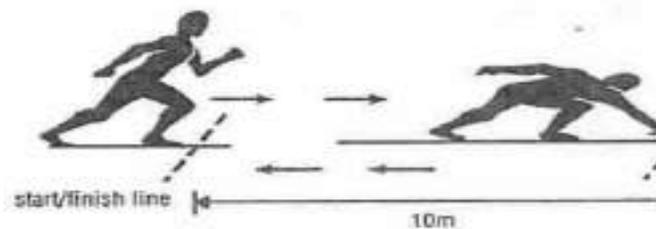


Fig.5: Shuttle Run Test

Test No.6: 800 Meters run

Purpose: To measure the endurance capacity of the subjects

Equipment: Stop watches, 400 m Track, Whistle

Markings: A marked 400m track can be used where curve start is to be given.

Procedure: The athlete stands behind the starting line. On the starting signal athlete runs the 400m track twice as limited time as possible.

Scoring: The time to cover the 800 meters distance to nearer 1/10" of a second is recorded as score of the test.



Fig. 6: 400 M Track

Test No.7: Modified 300 Meter Shuttle Run Test 25 Meter x 12

Purpose: To monitor the athlete's intermediate anaerobic power (lactate system).

Equipment: Measuring Tape, Marking Cones, Stop Watch

Procedure: Marker cones and lines are placed 25 Meters apart to indicate the sprint distance. Start with a foot on one line. When instructed by the timer, the player runs to the opposite 25Meter line, touches it with their foot, turns and run back to the start. This is repeated six times without stopping (covering 300 Meter total).

Scoring: The average of the two 300M shuttles is recorded meters distance to nearer 1/10" of a second is recorded as score of the test.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%

k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



8. Football

Description of Talent Identification Tests

Test No. 1: Sit and Reach Test

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box).

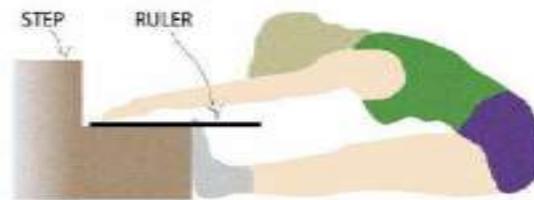


Fig 1. Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: Three trials were given and best one was recorded in cm for analysis.

Test No. 2: 12 X 20 M repetitive sprint test with 20 secs recovery

Purpose: To determine the anaerobic capacity, the ability to recover between sprints and produce the same level of power repeatedly.

Equipment: Timing gates, measuring tape, stopwatch, marker cones, at least 50-meter track.

Procedure: Two lines are drawn (or tape used) on the track 20 meters apart, and timing gates placed at these points. Two cones are placed 10m beyond each end of the 20M, which will be the turning area. The participant places their preferred foot at the starting line and then sprints maximally for 20M, ensuring that they do not slow down before reaching the end. A stopwatch is started on the first movement of the runner, and is left on to measure total cumulative time. Record the time for each sprint from the timing gate system. After each sprint the runner turns (at the cones) and makes their way to the opposite end ready for the next sprint, to be done in the opposite direction to the previous sprint. The next 20 M sprint starts 20 seconds after the first one started. This cycle continues until 12 sprints are completed. The sprints start a 0, 20 sec, 40 sec, 1 min, 1min 20 sec, and 1min 40 sec after the start of the first sprint.



Fig 2. 12x20M repetitive sprint

Scoring: The scoring is done by calculating the best time X 12. Distance to nearer 1/10" of a second is recorded as score of the test.

Test No. 3: Standing Vertical Jump

- Purpose:** To measure the explosive power of lower limbs (legs).
- Equipment:** Measuring Tape, Bench, Chair, Chalk Powder and Duster.
- Marking:** A vertical wall is prominently marked in centimeters up to 3.50 meters

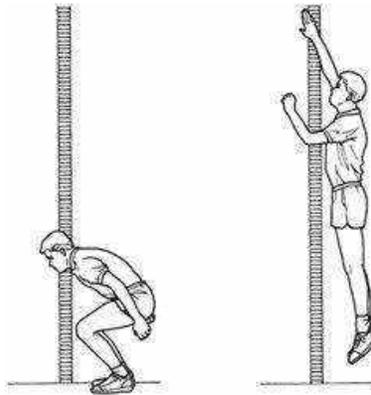


Fig 3. Vertical Jump

- Procedure:** The athlete dips his or her fingers in chalk powder and stands side-wise against the wall, keeping the arm raised completely above the head and claps the extended hand marked with chalk on the wall straight. The athlete jumps as high up as possible and touches the wall. The reading shall be noted by keeping eyes in level with the chalk mark on the progressed marking. Three attempts are permitted.
- Scoring:** The standing reach is subtracted from the jumping reach. The score shall be the best of three jumps. The score is recorded to the nearest centimeter.

Test No. 4: 30 M Flying Test

- Purpose:** To determine speed endurance and anaerobic recovery.
- Equipment:** Measuring tape or marked track, stopwatch or timing gates, cone markers, flat and clear surface of at least 80 meters.

Procedure: Set up cones at 0, 30m and 60m along a straight line, and timing gates if available at 30m and 60m. The test involves a 30m acceleration area to enable the runner to get up to their maximum speed, then maximal sprinting over 30 meters. The tester should provide hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and encourage them to continue running with maximum effort past the finish line.

Scoring: Two trials are allowed, and the best time is recorded to the nearest two decimal places. The timing starts from when the athlete's torso passes through the first timing gate, or by stopwatch when they pass the 30m cone, and finishes at the 60m cone marker. The flying 30m time can be used to predict 100m sprint times.

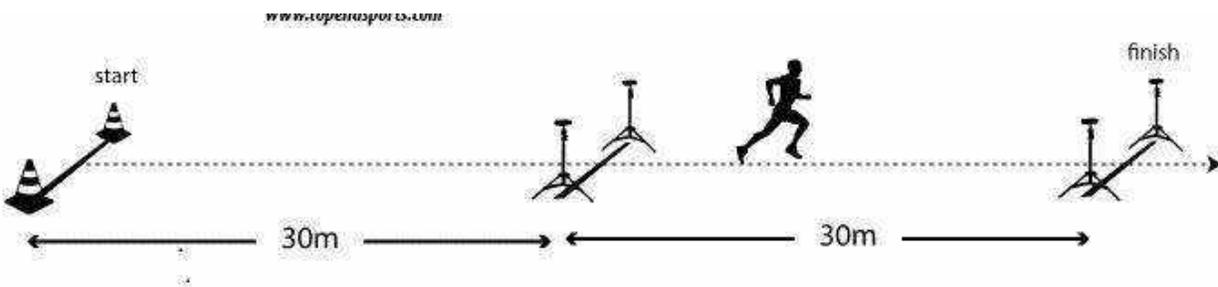


Fig 4. 30 m Flying Test

Test No. 5: 1 Kg Medicine Ball Throw

Purpose: To measure back and explosive strength of the upper body.

Equipment: Medicine ball of 1kg, Measuring Tape, One-meter diameter circle.

Procedure: The subject sits in the centre of the one-meter diameter's circle with his/her legs stretched forward comfortably. Legs should also be securely apart and spine should be in line with the centre of the circle as shown in fig. 4. From this positing subject throws the ball up and forward as far as possible with both the hands over the head. Three attempts are permitted.

Scoring:

The score shall be best of the three throws where a horizontal distance shall be measured from the centre of the circle in centimeters.

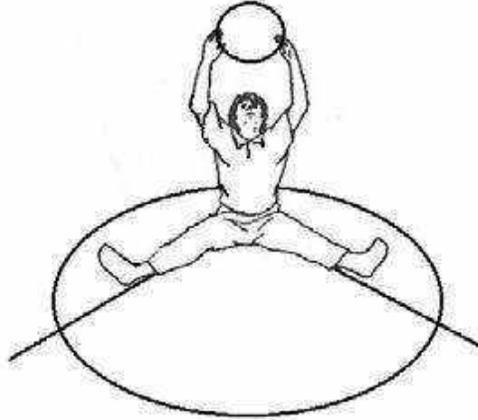


Fig.5. Medicine ball throw

Test No. 6: cricket ball overhead throw

Purpose:

To estimate power (shoulder-flexion / elbow extension)

Equipment:

8-12 cricket balls, measuring tape, tape / cones (for marking)

Procedure:

The coach marks one line with tape or a rope on even ground (preferably track or even grass, if possible). A measurement tape with the zero-point at the beginning of this line will be installed at the side of the throwing area.

The athletes are asked to take a ball and move to the line (toes of the front foot should be very close but not touching the line). They progress into the power position, similar to the standing throw position in javelin throw.

The athletes perform a straight throw, with the ball staying above shoulder height throughout the movement, trying to throw the cricket ball as far as possible. They are supposed to use their legs and hips for the overall body extension to increase power and the velocity of the ball. Every athlete is allowed to execute two [2] throws with one arm.

If an additional throw is necessary due to whatever reason, a third attempt will be granted.

Scoring: The distance covered from zero-point to the landing point of the implement (1.00m steps on the measurement tape) will be considered for the record.

Test No. 7: T - Test

Purpose: To determine the agility for athletes, and includes forward, lateral, and backwards running.

Equipment: Tape measure, marking cones, stopwatch, timing gates (optional).

Procedure: Four cones as illustrated in the diagram below are set up (5 yards = 4.57 m, 10 yards = 9.14 m). The subject starts at cone A. On the command of the timer, the subject sprints to cone B and touches the base of the cone with their right hand. They then turn left and shuffle sideways to cone C, and also touches its base, this time with their left hand. Then shuffling sideways to the right to cone D and touching the base with the right hand. They then shuffle back to cone B touching with the left hand, and run backwards to cone A. The stopwatch is stopped as they pass cone A.

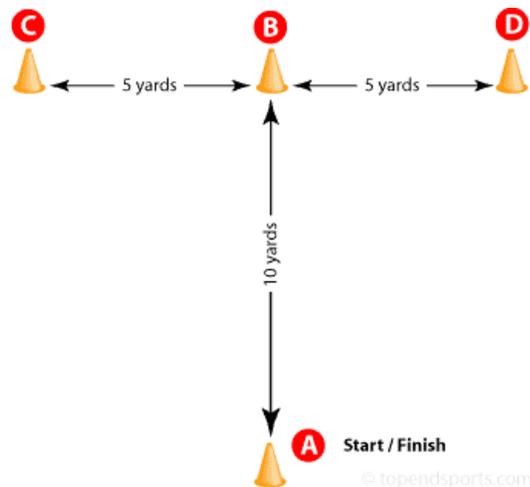


Fig 6. T-Test for agility

Scoring: The trial will not be counted if the subject crosses one foot in front of the other while shuffling, fails to touch the base of the cones, or fails to face forward throughout the test. The best time of three successful trials to the nearest 0.1 seconds is recorded.

Test No. 8: Yo-Yo Intermittent Level 1 for Children Test

Purpose: To evaluate the ability to repeatedly perform high-intensity aerobic work.

Equipment: The description of the tests and test signals are provided in a CD-ROM. To perform the test a CD-player, a tape measure, markers/cones, a stop watch and a pencil are needed.

Markings: Two markers are placed on the ground exactly 16 m apart (two lines can also be used) and a third marker is placed 4 m behind the start marker.

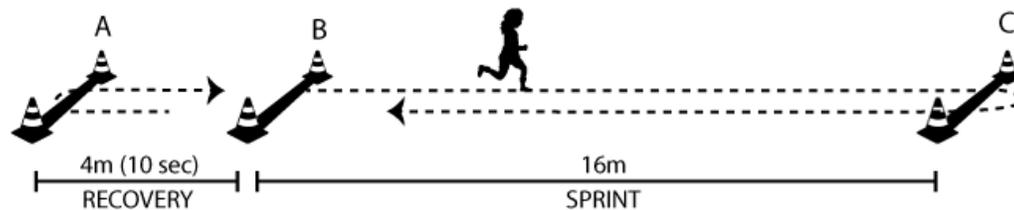


Fig7. YoYo Intermittent Level 1 for Children

Procedure: Yo-Yo IR test last for 5-15 minutes of running and consists of 2 × 16 meters shuttle runs interval of running and 2 × 4 meters for active recovery inter spread by a regular short rest periods 10 sec. The CD – rom that follows the Yo –Yo test package provides the information about how to perform the test and gives the signal to control the speed. Briefly the player runs forward 16 meters at a speed, so that

the player reaches the 16-meter marker exactly at the time of the signal. A turn is made at the 16-meter markers and the player runs back to the starting marker which has to be reached at the time of the next signal. Then the player has a 10- second break running slowly around the third marker placed 4 meters behind. If the players run too quickly, he/she must wait at the marker until the next signal. It is recommended that that the players upon turning switches between left and right foot to avoid one sided load on the body. The course is repeated until failure to complete the shuttle run in time on two occasions. The first time the start marker is not reached a warning is given (yellow card) and the second time the test is terminated (red card).The last running interval that a player has completed before being excluded from the test is noted and the test result is expressed as the total running distance covered in the test.

Scoring:

The results for the yo-yo test can be given as the time to exhaustion, the total distance covered, the level number achieved, or speed level and shuttles, though the most common way the score is reported is the speed level plus the number of shuttles.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1

AIFF Scouting Assessment Template for SUB-JUNIOR, JUNIOR INDUCTION PLAYERS (Boys U11/U12 & Girls) (TECHNICAL)

TECHNICAL INFORMATION

Parameters (provide Assessment Score or marks on a scale of 1-10, where 10 is excellent):

Attacking:		Physical:	
Defending:		Psychological:	
Transition:		Technical:	

REMARKS: (insert any other relevant positive & negative observations; any extraordinary quality?)

Comment on inborn qualities:

Comfort on ball	Passing accuracy	Intelligence
Speed	Spirit	Height (estimate growth)

Any additional: **any other notable aspects, positive or negative*

Insert picture: *past & current photographs of players*

OTHER INFORMATION FOR DUE DILIGENCE (collected or recorded separately)			
Birth certificate		Passport	
Aadhaar		Parents/Family	all docs, photos, NOC
School ID		Personal meeting	<i>with immediate family</i>
School records	<i>past report cards etc.</i>	Personal & Family medical history	

***Notes:** *Selection/admission of player to be based on POTENTIAL, POTENTIAL to be based on the attributes necessary in a player for SENIOR INTERNATIONAL FOOTBALL assessment norms to undergo alterations/changes depending upon new information, technology, best practices, etc. tests related sports science, age, genealogy, etc. to be added as per developing systems in football*

9. Gymnastics

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
9.	Gymnastics	Under 12	Physical Tests	
			20 M Sprint	Seconds & Minutes
			Standing Broad Jump	Centimeters
			Hand Grip Strength (Both left and right hands)	Kilograms
			Shuttle Run – 10X6 M	Seconds & Minutes
			Flexed Hang on High Bar	Seconds & Minutes
			Straight and Side Walking on Balancing Beam	Seconds & Minutes

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

Test No. 1: 20 M Sprint

- Purpose:** To measure the running speed.
- Equipment:** Stop watch, Marker, Flag, Ground, / floor.
- Procedure:** The test is to be administered from standing position (standing start). The subject needs to stand just behind the starting line. On an audible signal, he/she starts running as fast as possible and finishes at the end of the 20m line.
- Scoring:** Time taken in sec. to cover 20 m. distances is recorded. Two attempts are given at 10 min. interval and the better performance is to be considered for scoring purpose. The time is recorded electronically. If manually done, there must be two time keepers. the score is recorded in nearest 0.1 sec.



Fig 1: 20 M Sprint from standing start

Test No. 2: Standing Broad Jump

Purpose: The purpose of this test is to test the explosive strength of lower body muscles.

Equipment: (i) A flat jumping area at least 20 feet in length.
(ii) A tape measure at least 10 feet long duct tape or masking tape

Procedure: **(Using a Tape Measure)**

- Place a 2- to 3-foot (0.6-0.9 m) length of tape on the floor to serve as a starting line.
- The athlete stands with the toes just behind the starting line.
- The athlete performs a countermovement and jumps forward as far as possible.
- The athlete must land on the feet for the jump to be scored. Otherwise the trial is repeated.
- A marker is placed at the back edge of the athlete's rearmost heel, and the tape measure determines the distance between the starting line and the mark.
- The best of three trials is recorded to the nearest 0.5 inch or 1 cm.



Fig 2. Standing Broad Jump

Scoring: The distance covered from starting point to the nearest breaking point (5cm steps on the measurement tape) will be considered for the record. The score is recorded to the nearest meter.

Test No. 3: Hand Grip Strength (Both left and right hand)

- Purpose:** To measure the maximum isometric strength of the hand and forearm muscles.
- Equipment:** Handgrip dynamometer
- Procedure:** The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle of the dynamometer is adjusted if required - the base should rest on the first metacarpal (heel of palm), while the handle should rest on middle of the four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed. The subject should be strongly encouraged to give a maximum effort.



Fig 3. Handgrip Test

- Scoring:** The best result from several trials for each hand is recorded, with at least 15 seconds recovery between each effort.

Test No. 4: 10 m x 6 times Shuttle Run

- Purpose:** To measure Agility and Coordination.
- Equipment:** Stop watch, lime powder and a running course of 10 meters. Surface of the course should be non-slippery.
- Marking:** 10 meters of distance is marked by two parallel lines of 5 meters each.

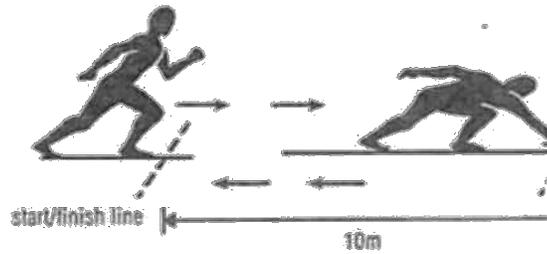


Fig 4. Shuttle Run Test

Procedure: The athletes (2 together) stand behind the starting line. On the command of starting signal “GO”, athletes run faster, go nearest to the other line and touch it with the one hand, turn and come back to starting line, touch it with hand, turns and repeat it for a total of 5 times and 6th time, run over the line as fast as possible. Two chances are permitted.

Scoring: The better time taken by the athlete to complete the course of 6 X10 meters to the nearest 1/ 10 of a second is recorded as score of the test. The better attempt out of the two is considered or scoring purpose.

Test No. 5: Flexed Hang on High Bar

Purpose: To measure grip, arms and shoulder strength.

Equipment: Horizontal Bar, Bench/ Box, Stop Watch, a mat under the bar for safety purpose.

Procedure: The subject should grip the bar with hands shoulder width apart and get into the top most pull-up position, with chin above the bar. They may take assistance of any person or may use bench / box to come to the position. Then, he/she is to hold the position without any support other than his/her hands for as long as possible.

Scoring: The maximum hold time of the subject is recorded in seconds, which becomes his/ her score.



Fig 5. Flexed Hang Position on High Bar

Test No. 6: Straight and Side Walking on Balancing Beam (Height 100cm)

- Purpose:** To measure balancing ability (and indirectly fearlessness).
- Equipment:** Balancing Beam Stop Watch, a mat under the Beam for safety purpose. (Height of the Beam to be fixed at 100 cm from the mat of 20 cm height)
- Procedure:** A player is asked to stand on the end of the Beam, keeping arms sideways. On the Command "GO", the player would start walking as fast as possible towards the other end of the Beam. After touching the second end of the Beam, the player shall right side (90°) and start walking sideways, by keeping his/ her arms sideways. After touching the First end with right toes, he/ she must walk as fast as possible, towards left side. After reaching at the second end, he/ she will turn left side and jump to land on the mat.

Scoring:

The maximum time taken to cover three lengths of the beam till landing on the Mat is recorded for scoring purpose.



Fig 6. Walking on Balance Beam

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



10. Hockey

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
10.	Hockey	Under 12	Physical Tests	
			Speed -10 m time	Seconds/Minutes
			Speed – 40 m time	Seconds/Minutes
			Repeated Sprints (6x30 m)	Percentage Difference
			Skill Tests	
			Receiving Short Distances	Score in Percentage Fore stick Count and Reverse stick Count
			Receiving Long Distances	Score in Percentage Fore stick Count and Reverse stick Count
			Passing Short Distances	Score in Percentage Fore stick Count and Reverse stick Count
			Passing Long Distances	Score in Percentage Fore stick Count and Reverse stick Count
			Overhead Passing and Receiving	Score in Percentage Pass Count & Receive Pass
			Tackling	Score in Percentage
			Aerial Skills	Score in Percentage Forehand Count & Backhand Count
			Drag Flicks	Score in Percentage
			1 vs 1	Score in Percentage

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

(I) DESCRIPTION PHYSICAL TEST

Test No. 1: 10 Meter time

Purpose: The purpose of this test is to determine acceleration, maximum running speed and speed endurance.

Equipment: Measuring tape or marked track, stopwatch or timing gates, cone markers.



Fig 1. 10 M time

Procedure: The test involves running a single maximum sprint over a set distance, with time recorded. After a standardized warm up, the test is conducted over 10 meters. The starting position should be standardized, starting from a stationary position with a foot behind the starting line, with no rocking movements. With the timing gate equipment, the time to run each split distance is measured during the same run, and then acceleration and peak velocity can also be determined.

Scoring: The scoring is done with measure of the time for the first 10 meters or yards from a stationary start as a score for acceleration. The score is recorded in nearest 0.1 sec.

Guidelines for Scoring

(i) **Sub-Junior Age:**

	MALE	FEMALE
Excellent	< 1.80 secs	< 2.00 secs
Very Good	1.81 – 1.90	2.01 – 2.10
Average	1.91 – 2.00	2.11 – 2.20
Fair	< 2.01 sec	< 2.21 secs

(ii) **Junior Age:**

	MALE	FEMALE
Excellent	< 1.75 secs	<1.90 secs
Very Good	1.76 – 1.85	1.91 – 2.00
Average	1.86 – 1.95	2.01 – 2.10
Fair	< 1.96 secs	< 2.11 secs

Test No.2: 40 Meter Time

Purpose: The aim of this test is to determine acceleration and speed.

Equipment: Measuring tape or marked track, stopwatch or timing gates, cone markers, flat and clear surface of at least 60 meters.

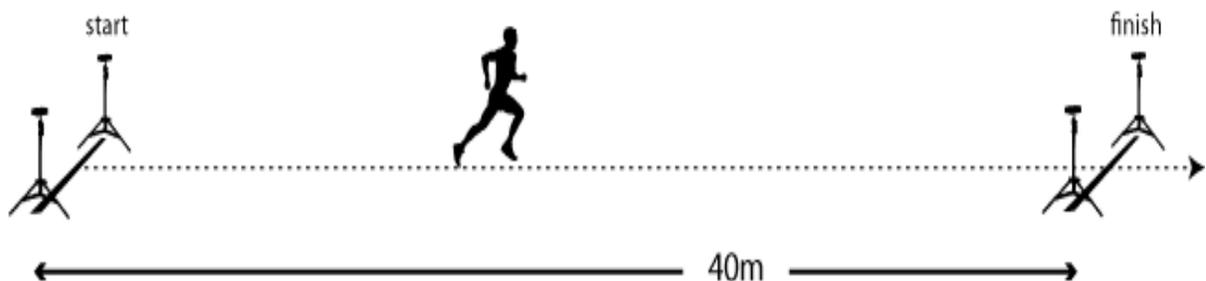


Fig 2. 40 Meter Time

Procedure: The test involves running a single maximum sprint over 40 meters, with the time recorded. A thorough warm up should be given, including some practice starts and accelerations. Start from a stationary position, with one foot in front of the other. The front foot must be on the starting line. This runner should be stationary prior to starting. The person timing should stand at the finish line with one arm held high, and call 'ready' followed by a sweep down their arm quickly to start the subject (do not call out 'go' due to the time delay in the subject hearing the call). As the arm sweeps down, the tester should start the stopwatch which is held in the downward sweeping arm, and finish the stopwatch as their chest passes through the finish line.

Scoring: Three trials are allowed, and the best time is recorded to the nearest two decimal places (sec).

Guidelines for Scoring

(i) Sub-Junior Age:

	MALE	FEMALE
Excellent	< 5.50 secs	< 6.00 secs
Very Good	5.51 – 5.70	6.01 – 6.20
Average	5.71 – 5.90	6.21 – 6.40
Fair	< 5.90 secs	< 6.40 secs

(ii) Junior Age:

	MALE	FEMALE
Excellent	< 5.30 secs	< 5.70 secs
Very Good	5.31 – 5.50	5.71 – 5.90
Average	5.51 – 5.70	5.91 – 6.10
Fair	< 5.70 secs	<6.10 secs

Test No. 3: Repeated Sprints (6x30 m)

Purpose: To estimate the anaerobic capacity, the ability to recover between sprints and produce the same level of power repeatedly.

Equipment: 2 stopwatches, measuring tape, marker cones, at least 50 meters track.

Procedure:

- Measure a distance of 30 meters.
- Use two stop watches and whistle. First stop watch records players' 30 M time. Second stopwatch to be on for continuous 30 mins with player to repeat sprint every 30 seconds.
- From a standing start, player sprints 30. Record time.
- Player performs 6x30M consecutive sprints every 30 seconds.

Scoring: The percentage difference between the best time and the slowest times.
e.g. $5.50/5.90 \times 100 = 7\%$ difference.

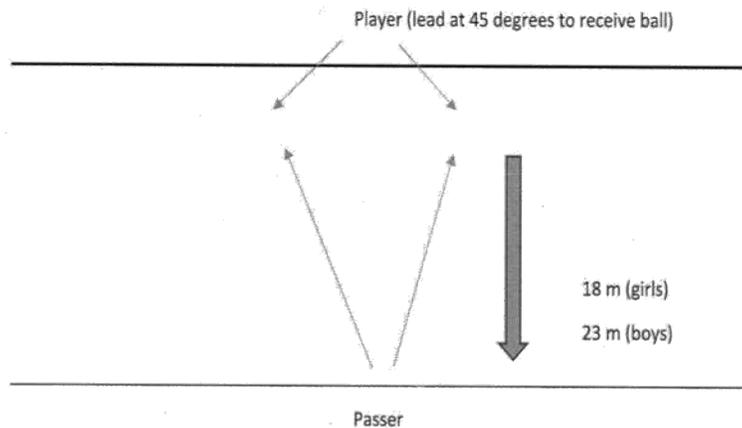
Guidelines for Scoring:

< 2% difference	- Excellent
2 – 3% difference	- Very Good
3 – 5% difference	- Average
>5% difference	- Fair

(II) DESCRIPTION OF SKILL TESTS

Test No. 1: Receiving Short Distances

Player must receive balls hit at speed from 18 m (girls) and 23 m (boys)



Mark the ability of the player to trap the ball 'dead' and their foot positioning.

- Player receives 10 balls onto fore-stick.
- Player receives 10 balls onto reverse-stick.

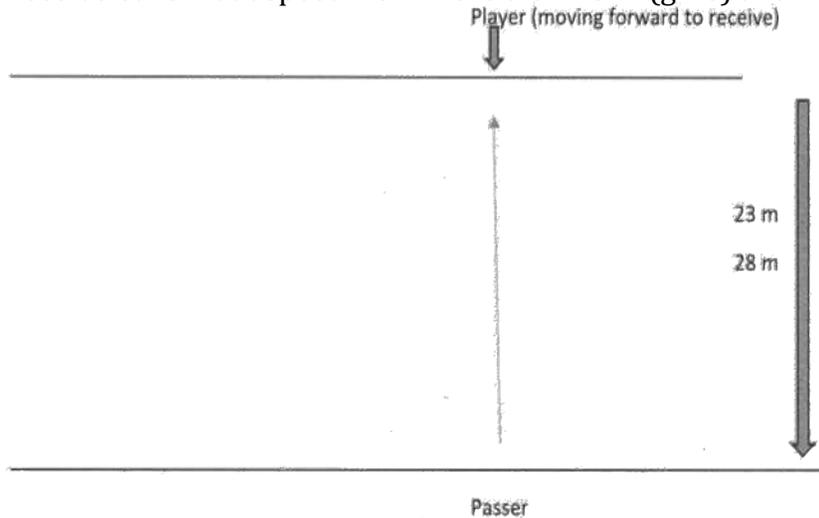
Note: Player must receive moving at 45 degrees to the pass.

Guidelines for scoring:

- | | |
|-----------|-------------|
| >90 % | - Excellent |
| 80 – 90 % | - Good |
| 70 – 80 % | - Average |
| < 70 % | - Fair |

Test No. 2: Receiving Long Distances

Player must receive balls hit at speed from more than 23 m (girls) and 28 m (boys)



Mark the ability of the player to trap the ball 'dead' and their foot positioning.

- Player receives 10 balls onto fore-stick.
- Player receives 10 balls onto reverse-stick.

Note: Player must receive moving forward towards the pass and cannot be stationary.

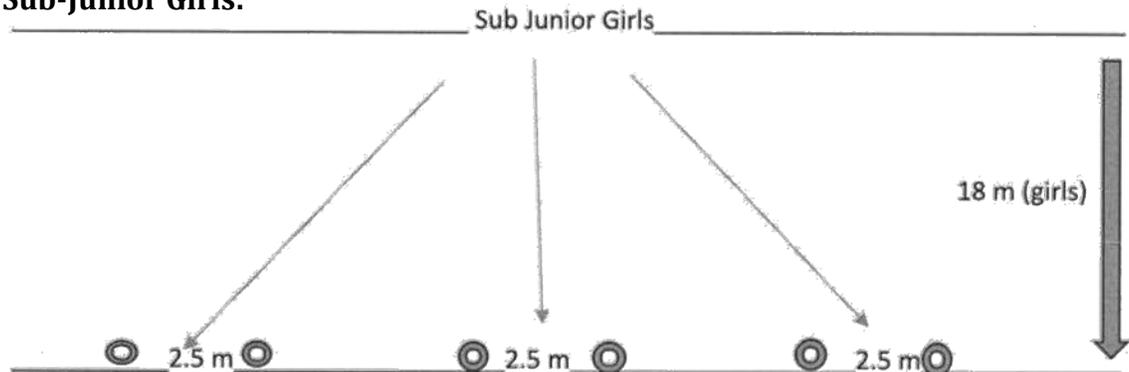
Guidelines for scoring:

- | | |
|-----------|-------------|
| >90 % | - Excellent |
| 80 – 90 % | - Good |
| 70 – 80 % | - Average |
| < 70 % | - Fair |

Test No. 3: Passing Short Distances

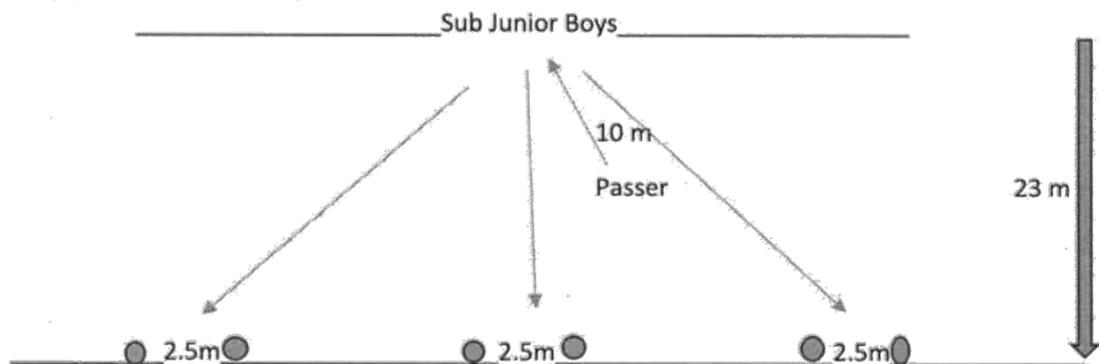
Player must display passing skills over 18 m (girls) or 23 m (boys) with accuracy. Four cones are placed in a 2.5 m square on the 25-yard line directly in front of the player and four cones in a 2.5 m square on the 25-yard line at 45 degrees to the passing player.

(i) Sub-Junior Girls:



- Using a receiving a 5m pass, pass ball using fore-stick at speed directly in front between the cones spaced 2.5 meters.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the fore stick.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the reverse stick.

(ii) Sub-Junior Boys:



- After receiving a 10 m pass from slightly off-centre, pass the ball using fore-stick at speed directly in front between the cones spaced 2.5 meters apart. Perform 10 times.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the fore stick.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the reverse stick.

Record the accuracy of the 10 passes. A successful pass occurs if the ball passes between the cones.

Guidelines for scoring:

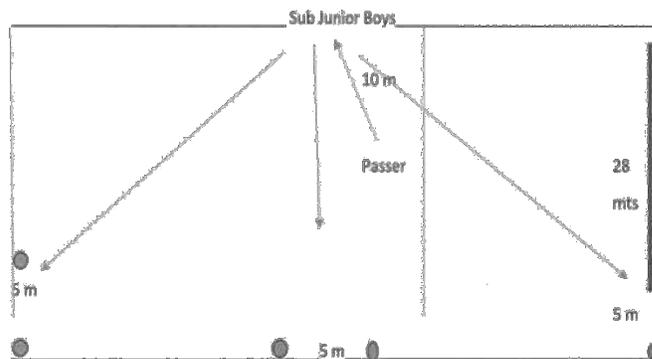
- >90 % - Excellent
- 80 – 90 % - Good
- 70 – 80 % - Average
- < 70 % - Fair

Test No. 4: Passing Long Distances

Player must display passing skills over 23 m (girls) or 28 m (boys) with accuracy.

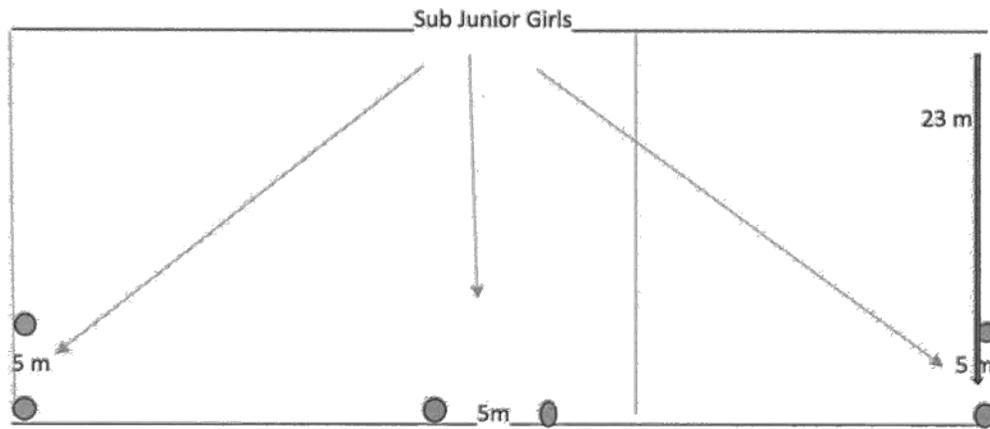
Four cones are placed in a 5 m square on the 35 m directly in front of the player and four cones in a 5 m square on the 5 meters at 45 degrees to the passing player.

(iii) Sub-Junior Girls:



- Using a receiving a 5m pass, pass ball using fore-stick at speed directly in front through cones (23m) spaced 5 meters apart. Perform 10 times.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the fore stick.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the reverse stick.

(iv) **Sub-Junior Boys:**



- After receiving a 10 m pass from slightly off-centre, pass the ball using fore-stick at speed directly in front between the cones spaced 2.5 meters apart. Perform 10 times.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the fore stick.
- Repeat the same procedure, passing 10 balls at 45-degree angle on the reverse stick.

Guidelines for scoring:

>90 %	- Excellent
80 – 90 %	- Good
70 – 80 %	- Average
< 70 %	- Fair

Test No. 5: Overhead Passing and Receiving

Player must display overhead passing and receiving skills over 15 m (girls) or 23 m (boys) with accuracy.

Four cones are placed in 2.5 m square 15 m directly in front of the player (girls) and four cones in a 2.5 m square 23 m in front of the boys.

- From a stationary ball, play an overhead pass into the designated target. Repeat this procedure 10 times.

- Standing inside the designated area, the player must trap and control the overhead pass. Repeat 10 times.

Guidelines for scoring:

Record the accuracy of the 10 overhead passes. A successful pass occurs if the ball passes into the square of cones.

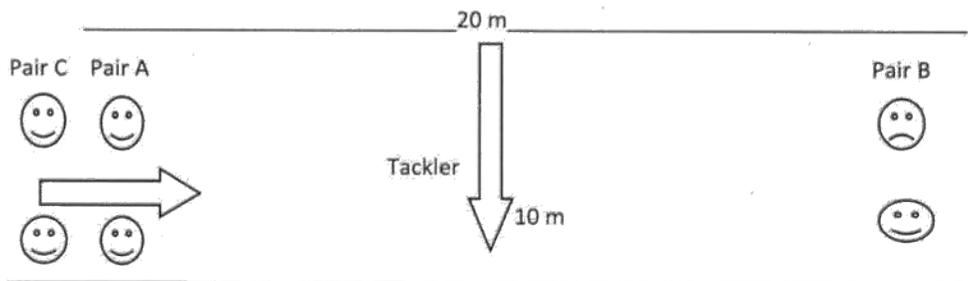
>90 %	- Excellent
80 – 90 %	- Good
70 – 80 %	- Average
< 70 %	- Fair

Record the accuracy of the 10 overhead receives. A player must show the ability to control the ball to the ground.

>90 %	- Excellent
80 – 90 %	- Good
70 – 80 %	- Average
< 70 %	- Fair

Test No. 6: Tackling

Player must display their proficiency of tackling in 2 vs 1 situation. A 20m x 10m channel in the field is created. The tackling player stands on the 10m (half line). Three pair of players (two at one end and one pair at opposite end) is required.



- A start is paired and staying within the channel, a 2 vs 1 against the tackling player is played. If the tackling player successfully wins the ball without committing a foul, a positive score is given.
- If the two players beat the tackling player, the ball is passed to Pair B and the exercise begins again. Then it is passed to a third pair.
- A total of 10 tackles are performed.

Test No. 7: Aerial Skills

Players display their proficiency in performing skills.

Within a 10 m square area, two hockey sticks, two shin guards, two dome hats, two 6 inch hurdles and two stick bags are placed on the ground with space between the items.

The ball (jink) must be lifted by the player using their fore-head side over 5 items and their back-hand over 5 times.

The ball must not touch the item to receive a perfect score.

The accuracy of 10 jinks are recorded. Then the player shows the ability to control the ball in the air.

>90 %	- Excellent
80 – 90 %	- Good
70 – 80 %	- Average
< 70 %	- Fair

Test No. 8: Drag Flicks

This Skill Test is performed for one who has performed the skill of drag flicking.

After receiving an injection and a clean trap, the player completes a drag flick. A total of 5 drag clicks should be completed with quality of the drag flick based on speed and accuracy.

Scoring:

- A drag flick that does not land in goal records as negative results.
- A drag flick that lands in the goal record but has little or no speed records as a negative results.
- A poor injection or trap is not counted and the process is repeated until 5 drag flicks are scored.

Test No. 9: 1 vs 1

To assess proficiency of players performing a 1 vs 1 from the 23 m line.

With a goal keeper in place, the player has 8 seconds to score a goal.

After the first 1 vs 1, a minimum of 30 seconds is allowed for GK and player to recover.

A total of five 1 vs 1 efforts are scored.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
A	Haemoglobin	g/dL
B	Packed Cell Volume	%
C	RBC Count	mill/mm ³
D	MCV	fL
E	MCH	Pg
F	MCHC	g/dL
G	Red Cell Distribution Width (RDW)	%
H	Total Leukocyte count (TLC)	thou/mm ³
I	<i>Differential Leukocyte Count</i>	
J	Segmented Neutrophils	%
K	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



11. Judo

A. Talent Identification Test Matrix for Grassroot Talent

S.No.	Sports	Categories	Test	Measurement
11.	Judo	Under 12	Physical Tests	
			Sit and Reach Test	Centimeter
			Modified Bass Test	Success/Fail
			Modified 300M Shuttle	Seconds & Minutes
			T- Test	Seconds & Minutes
			Vertical Jump	Centimeters
			Medicine Ball Put	Meters
			Multistage Shuttle Run	Level & Count
			Pull Up	Number (Count)

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

Test No.1: Sit & Reach

- Purpose:** The purpose of this test is to measure the subject's trunk flexibility.
- Equipment:** Sit and reach box (or alternatively a ruler can be used, and a step or box).

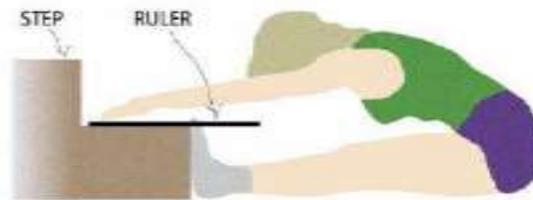


Fig 1. Sit & Reach Test

- Procedure:** This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.
- Scoring:** Three trials are given and best one is recorded in cm for analysis.

Test No. 2: Modified Bass test of Dynamic Balance

- Purpose:** To measure dynamic balance
- Equipment:** Adequate floor space, sticky tape for marking floor, measuring tape, stopwatch.

Procedure:

The course is marked out as illustrated in the diagram. The subject begins by standing stationary on the right foot on the starting point square. The subject then hops to the first tape mark with the left foot and immediately holds a static position for five seconds. After this time, he then hops to the second tape mark with the right foot and holds a static position for another five seconds. This continues with alternate foot hopping and holding a static position for five seconds at each point until the course is completed. At each point, the sole of the foot must completely cover each tape mark so that it cannot be seen. A period of practice with the procedure and on the course should be allowed.

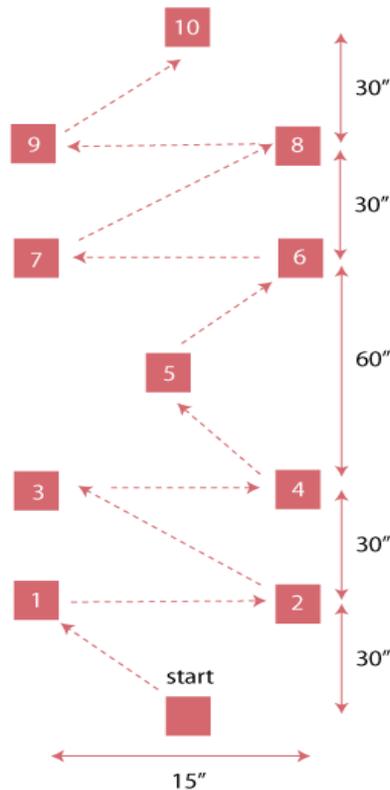


Fig 2. Modified Bass Test

Scoring:

The result is recorded as either a success or fail. A successful performance consists of hopping to each tape mark without touching the floor with the heel or any other part of the body, and holding a static position on each tape mark for five seconds without exposing the tape mark.

Test No. 3: Modified 300M Shuttle

- Purpose:** To measure anaerobic endurance
- Equipment:** Stopwatch, measuring tape, marker cones, a flat grass surface
- Procedure:** Marker cones and lines are placed 25 yards apart to indicate the sprint distance. Start with a foot on one line. When instructed by the timer, the player runs to the opposite 25-yard line, touches it with their foot, turns and run back to the start. This is repeated six times without stopping (covering 300 yards total). After a rest of five minutes, the test is repeated.

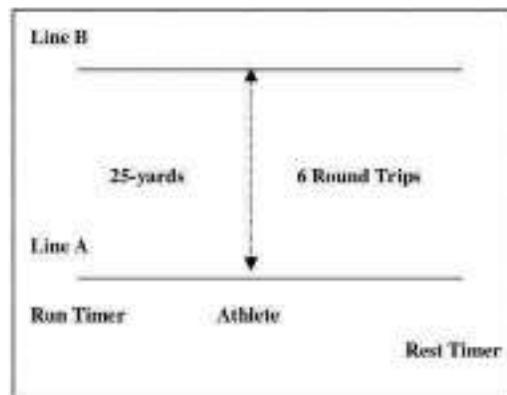


Fig 3. Modified 300M Shuttle Test

- Scoring:** Record the average of the two 300-yard shuttles. The scoring is recorded in sec.

Test No. 4: T-Test

- Purpose:** To determine the general agility of the body in maneuvering forward, backward and sideward.

Equipment: Four cones with 9 inches base and 12 inches height, stop watch, measuring tape and marking powder.

Procedure: A rectangle of 12' by 19' feet was marked with adequate running space around it. Four plastic cones '9' by '9' inches base with '12' inches height, were put in every inside of the corner of the marked field. The subject stood on starting point 1 and on signal, started side step from cone 1 to 2 and passed outside the corner cone 2 and back pedal from cone 2 to 3 and passed to the inside of the corner cone 3. Then he sprinted forward from cone 3 to cone 1, outside the corner cone. He made back pedal from cone 1 to cone 4 and passed to the inside of the cone 4. Then he made sprint forward from cone 4 to cone 2 and passed outside of the corner cone 2. In the last, he took side step from cone 2 to the finishing line at cone 1.

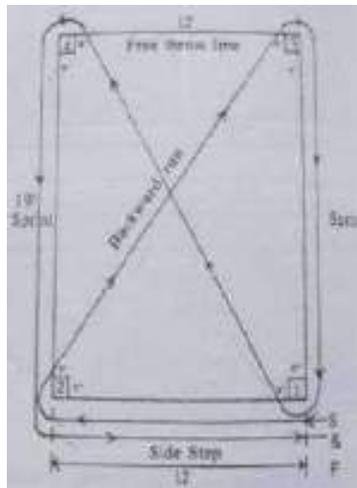


Fig 4. Semo agility test

Test No.5: Standing Vertical Jump

Purpose: To find the maximum muscle power.

Equipment:

- (i) A smooth wall with a ceiling higher than the highest jumper's jump height
- (ii) A flat floor with good traction
- (iii) Chalk of a different color than the wall.
- (iv) Measuring tape or stick

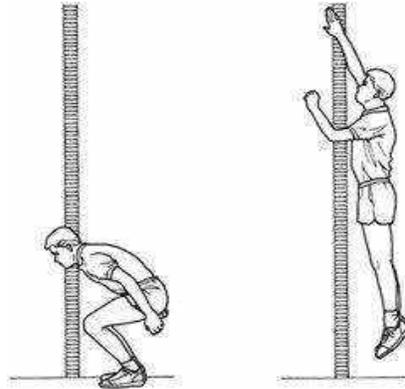


Fig 5. Standing Vertical Jump

Procedure:

(Using a Wall and Chalk)

- a) The tester rubs chalk on the fingertips of the athlete's dominant hand.
- b) The athlete stands with the dominant shoulder about 6 inches (15 cm) from the wall and, with both feet flat on the floor, reaches as high as possible with the dominant hand and makes a chalk mark on the wall.
- c) The athlete then lowers the dominant hand and, without a preparatory or stutter step, performs a countermovement by quickly flexing the knees and hips, moving the trunk forward and downward, and swinging the arms backward. During the jump, the dominant arm reaches upward, while the non-dominant arm moves downward relative to the body.
- d) At the highest point in the jump, the athlete places a second chalk mark on the wall with the fingers of the dominant hand using a swiping motion of the fingers. The score is the vertical distance between the two chalk marks.
- e) The best of three trials is recorded to the nearest 0.5 inches

No. of attempts:

Every athlete is allowed to execute two [2] jumps. If an additional jump is necessary due to instable landing, a third attempt will be granted.

Scoring:

The standing reach is subtracted from the jumping reach. The score shall be best of three jumps. The scoring is recorded in nearest centimeter

Test No. 6: 1 Kg Medicine Ball Put

Purpose: To measure the Explosive Strength of Arms

Equipment: Measuring Tape

Procedure: The athlete sits on the floor with his legs fully extended, feet 24 inches (~60 cm) apart and with the back against a wall. The ball is held with the hands on the side and slightly behind the centre and back against the centre of the chest. The forearms are positioned parallel to the ground. The athlete throws the medicine ball vigorously as far straight forward as he can while maintaining the back against the wall. The distance thrown is recorded.

Score: The distance from the wall to where the ball land is recorded. The measurement is recorded to the nearest centimeter. The best result of three throws is used.

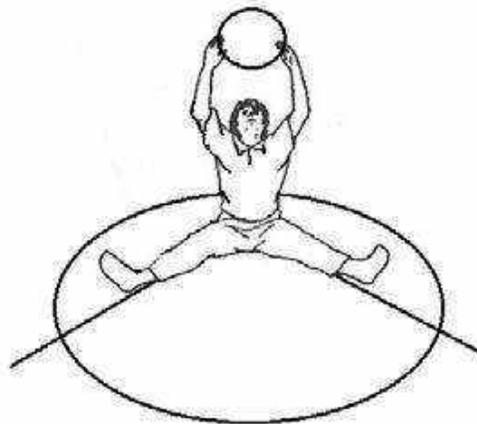


Fig 6. Medicine Ball Put

Test No. 7: 20M Shuttle Run Test

/ (Beep test)

Purpose: To estimate an athlete's aerobic capacity (VO₂ max).

Equipment: Flat, non-slip surface, marking cones, 20m measuring tape, beep test audio, audio player, recording sheets.

Procedure: This test involves continuous running between two lines 20m apart in time to recorded beeps. For this reason, the test is also often called the 'beep' or 'bleep' test. The participants stand behind one of the lines facing the second line, and begin running when instructed by the recording. The speed at the start is quite slow. The subject continues running between the two lines, turning when signaled by the recorded beeps. After about one minute, a sound indicates an increase in speed, and the beeps will be closer together. This continues each minute (level). If the line is reached before the beep sounds, the subject must wait until the beep sounds before continuing. If the line is not reached before the beep sounds, the subject is given a warning and must continue to run to the line, then turn and try to catch up with the pace within two more 'beep'. The subject is given a warning the first time they fail to reach the line (within 2 meters), and eliminated after the second warning.

Scoring: The athlete's score is the level and number of shuttles (20m) reached before they were unable to keep up with the recording. Record the last level completed (not necessarily the level stopped at).



Fig 7. 20M Shuttle Run Test

Test No. 8: Pull Ups

Purpose: To measure strength endurance of arms and shoulders (Upper body).

Equipment: Horizontal bar, Stop watch, Paper and Pencil



Fig8. Pull Ups

Procedure: Grasp the overhead bar using either an overhand grip (palms facing away from body) or underhand grip (palms facing toward body), with the arms fully extended. The subject then raises the body until the chin clears the top of the bar, then lowers again to a position with the arms fully extended. The pull-ups should be done in a smooth motion. Jerky motion, swinging the body, and kicking or bending the legs is not permitted. As many full pull-ups as possible are performed.

Scoring: The total number of correctly completed pull-ups is recorded

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



12. Kabaddi

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
12.	Kabaddi	Under 12	Physical Tests	
			6x 10 M Shuttle Run	Seconds and Minutes
			30 M Run	Seconds and Minutes
			Standing Broad Jump	Centimeters
			Forward bend and reach Test	Centimeters
			Medicine ball throw	Meters
			Sit ups	Count (Number)
			800 Mts Run	Seconds and Minutes

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

Test No.1: 6X10 M Shuttle Run

- Purpose:** To determine the agility of the athlete.
- Equipment:** Stop watch, lime powder and a running course of 10 meters. Surface of the course should be non-slippery.
- Marking:** 10 meters of distance is marked by two parallel lines of 5 meters each.

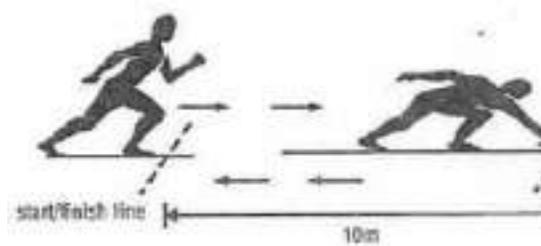


Fig.1 Shuttle run test

- Procedure:** The athletes (2 together) stand behind the starting line. On the command of starting signal “GO”, athletes run faster, go nearest to the other line and touch it with the one hand, turn and come back to starting line, touch it with hand, turns and repeat it for a total of 5 times and 6th time, run over the line as fast as possible. Two chances are permitted.
- Scoring:** The better time taken by the athlete to complete the course of 6 X10 meters to the nearest 1/ 10 of a second is recorded as score of the test. The better attempt out of the two is considered for scoring purpose.

Test No.2: 30 meters run

Purpose: To determine acceleration and speed.

Equipment: Measuring tape or marked track, stopwatch or timing gates, cone markers, flat and clear surface of at least 50 meters.



Fig 2. 30 meters run

Procedure: The test involves running a single maximum sprint over 30 meters, with the time recorded. A thorough warm up should be given, including some practice starts and accelerations. Start from a stationary position, with one foot in front of the other. The front foot must be on or behind the starting line. This starting position should be held for 2 seconds prior to starting, and no rocking movements are allowed. The tester should provide hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and encourage them to continue running hard through the finish line.

Scoring: Two trials are allowed, and the best time is recorded to the nearest 2 decimal places. The timing starts from the first movement (if using a stopwatch) or when the timing system is triggered, and finishes when the chest crosses the finish line and/or the finishing timing gate is triggered.

Test No.3: Standing Broad Jump

Purpose: To measure explosive Legs strength and body coordination

Equipment: Floor/ Ground, Measuring Tape, Marker



Fig 3. Standing Broad Jump

Procedure: The athlete stands behind a line marked on the ground with feet slightly apart. A two-foot takeoff and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backwards. Three attempts are allowed.

Scoring: The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Three attempts one after the other are given. All the three are marked. The longest distance jumped, the best of three attempts, will be the score of the athlete. The scoring is recorded in nearest meters.

Test No.4: Forward Bend and Reach

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box).

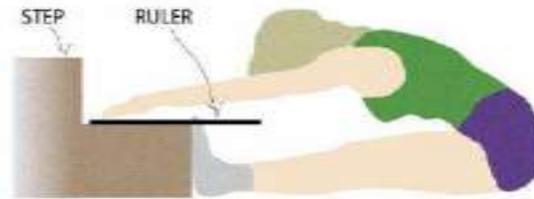


Fig 4. Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: Three trials were given and best one was recorded in cm for analysis.

Test No.5: Medicine Ball throw

Purpose: To measure back and explosive strength of the upper body.

Equipment: Medicine ball of 1kg, Measuring Tape, One-meter diameter circle.

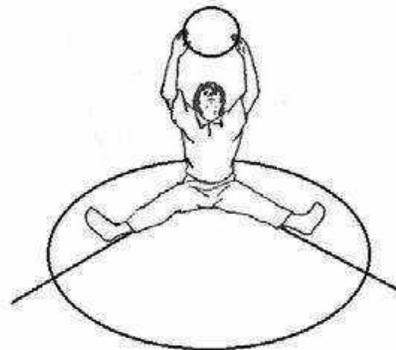


Fig.5. Medicine ball throw

Procedure: The subject sits in the centre of the one-meter diameter's circle with his/her legs stretched forward comfortably. Legs should also be securely apart and spine should be in line with the centre of the circle as shown in fig. 4. From this positing subject throws the ball up and forward as far as possible with both the hands over the head. Three attempts are permitted.

Scoring: The score shall be best of the three throws where a horizontal distance shall be measured from the centre of the circle in centimeters.

Test No.6: Sit Ups

Purpose: To measure explosive Abdominal Strength

Equipment: Floor/ Ground, Stop Watch

Procedure: The athlete assumes back lying position on the mat keeping her arms over the head. On the command "GO" he/she energetically lifts the legs and upper body and touches his/her feet with the hands. This is called sit-ups in "V" position. He/she performs maximum sit-ups in picked position in 60 seconds. The time keeper starts taking time on the command "GO" and stops the watch at 60 seconds.



Fig 6. Sit Ups

Scoring: Maximum number of Sit Ups performed in 60 seconds will be his/her score.

Test No.7: 800 M Run

- Purpose:** The aim of this test is to complete 800 meters in the quickest possible time. This is a test of an athlete's ability to run quickly over a short distance.
- Equipment:** Oval or 400m running track, stopwatch, recording sheets.
- Procedure:** The aim of this test is to complete the 800 M course in the quickest possible time. To start, all participants line up behind the starting line. On the command 'go,' the clock will start, and they will begin running at their own pace. Cheering or calling out the elapsed time is also permitted to encourage the participants to achieve their best time.
- Scoring:** The total time taken to run 800m is recorded. Use the table below to get a rating from the test time for adults.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



13. Kho Kho

A. Talent Identification Test Matrix for Grassroot Talent

S.No.	Sports	Categories	Tests	Measurement
13.	Kho-Kho	Under 12	General Tests	
			Cover and Attack	Seconds and Minutes
			Pole Turn Test	Count (Number)
			Oval Run Test	Seconds and Minutes
			Zig Zag	Seconds and Minutes
			3-3-2	Seconds and Minutes

Safety

The coaches have to ensure that the participants conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough water during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implements.

Description of Talent Identification Tests

Test No.1: Cover and Attack

Purpose: To check covering and attacking ability of a Chaser.

Equipment: Stop watch, Whistle, Marking Powder, Cones.

Procedure:

Step 1: Subject start test from point A and go straight for 2 mtrs from point A to point B.

Step 2: When subject reaches at point B, Subject suddenly moves towards his right in diagonal direction from point B to point C and subject needs to sit in the Chaser's box at point C.

Step 3: Again subject needs to stand at point C and go straight for 6 mtrs from point C to point D.

Step 4: From point D Subject moves towards his left in diagonal direction from point D to point E and subject needs to sit in Chaser box at point E.

Step 5: Again subject needs to stand at point E and go straight for 2 mtrs from point E to point F.

Step 6: When subject reached at point F, Subject suddenly moves towards his left in diagonal direction from point F to point G and subject needs to sit back in Chaser's box at point G.

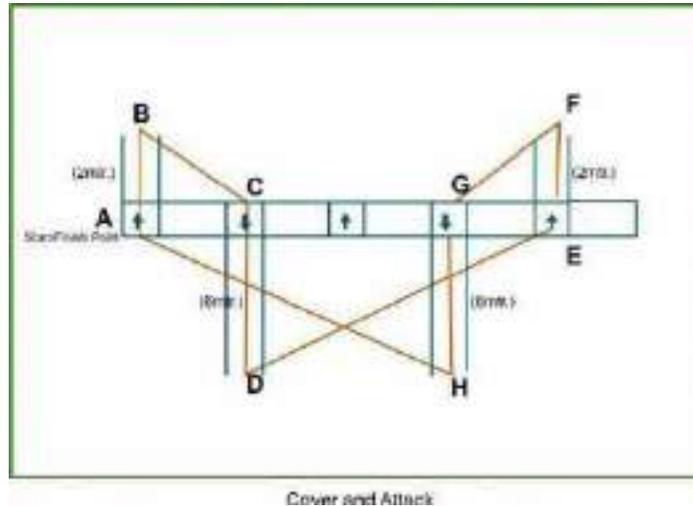
Step 7: Again subject needs to stand at point G and go straight for 6 mtrs from point G to point H.

Step 8: From point H Subject moves towards his right in diagonal direction from point H to point A and subject needs to sit in Chaser box at point A.

The tester to start stop watch, when subject start on whistle from point A and should stop his stop watch, when subject finished his/her test after sitting back in Chaser box at point A.

Scoring:

Time elapsed from the starting point to the finishing point in secs. to be considered as the score obtained of the subject.



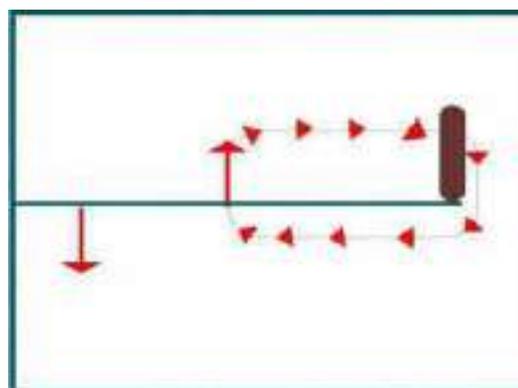
Test No.2: Pole Turn Test

Purpose: To measure Pole Turn ability.

Eq. required: Stop watch, Whistle, Marking Powder, Cones.

Procedure: In the beginning of the Test, subject sits on first Chaser box and on command "Go" subject start moving towards nearest Pole for Pole turning. After Pole turning subject needs to comeback and sit back in first Chaser box. Subject needs to perform this activity repeatedly for 30 seconds in clockwise direction (right side pole turning) and 30 seconds in anti-clockwise wise direction (left side Pole turning) separately, with a span of at-least 5 minutes.

Scoring: Number of pole turning perform by the subject in 30 seconds is consider as score obtained of the subject.



Pole Turning

Test No.3: Oval Run Test

Purpose: To measure the foot work (ring game foot work).

Eq. required: Stop watch, Whistle, Marking Powder, Cones.

Procedure: Subject to perform this test in the following manner:

Step 1: Forward run from point A to point B and turn around at point B in clockwise direction.

Step 2: Sideward run from point B to point C.

Step 3: Backward run from point C to D.

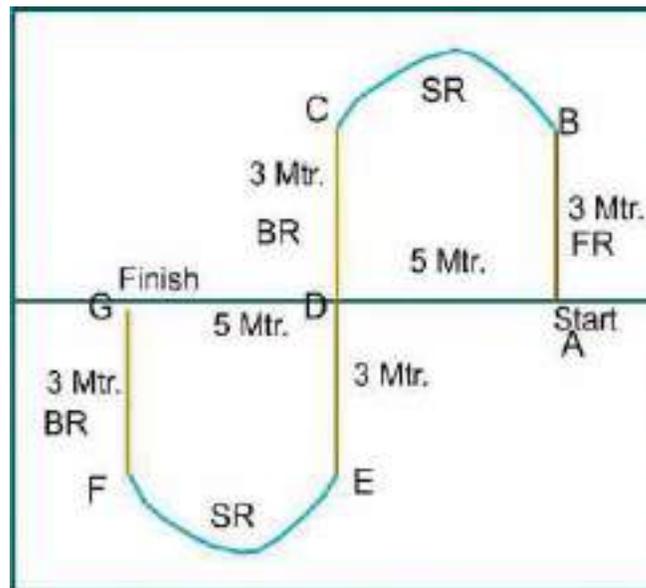
Step 4: Forward run from point D to point E and turn around at point E in anti clockwise direction.

Step 5: Sideward run from point E to point F.

Step 6: Backward run from point F to G.

The tester start stopwatch, when subject start from point A and tester should stop his stopwatch, when subject cross point G.

Scoring: Time elapsed to perform activity from point A to points G in seconds be considered as score obtained of the subject.



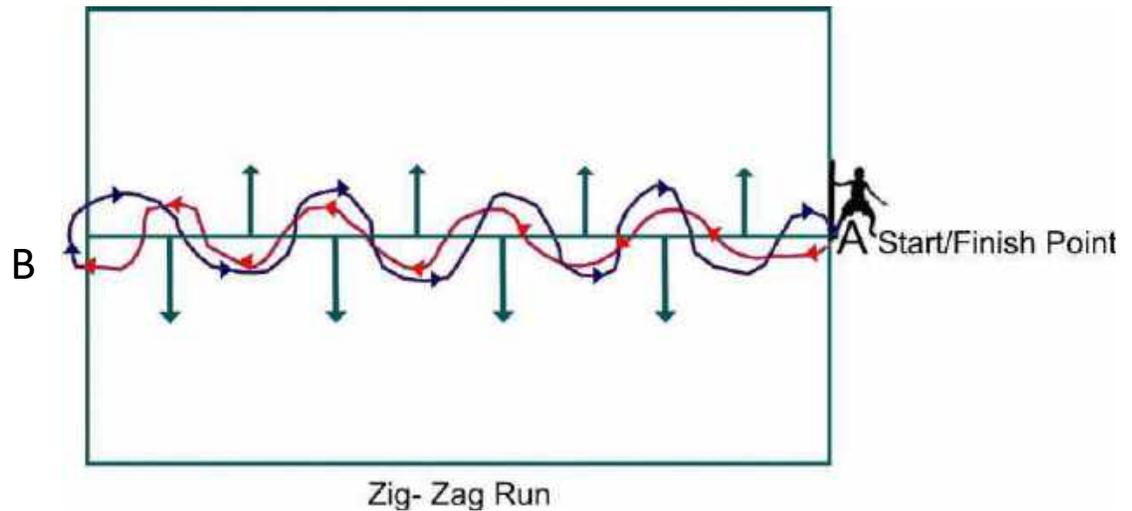
Oval Run

Test No.4 (a): Zig-Zag

Purpose: To measure the foot work (Chain game footwork).

Eq. required: Stop watch, Whistle, Marking Powder, Cones.

Procedure: Subject will stand behind the Post line on the start of the signal “Go”, run Zig-Zag running from point A to B, while reaching at point B, again subject will start Zig-Zag run continuously from point B to A. The distance between one chaser box to another chaser box is 2.30 mtr, except Chaser block which is nearest to the Post both side and the distance between first Chaser block to Post is 2.55 mtr.



Scoring: Time taken from starting point to finishing point in sec. to be considered as the score obtained of the subject.

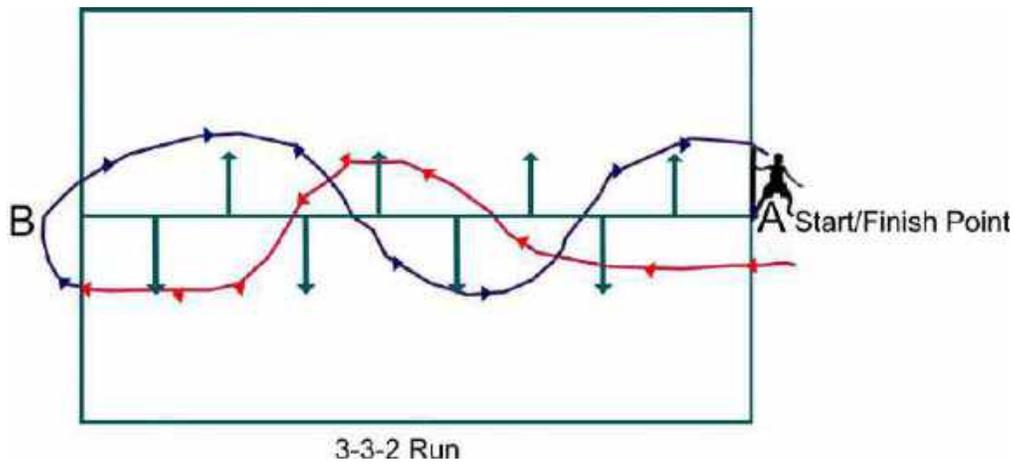
Test No.4 (b): 3-3-2 Run

Purpose: To measure the foot work (Chain game foot work)

Eq. required: Stop watch, Whistle, Marking Powder, Cones

Procedure: Subject to stand behind the Post line, on the start of the signal “Go”, run 3-3-2 by taking entry from the back of 3rd and 6th seated Chaser and straight run up to the point B and again, the subject shall start 3-3-2 run continuously by taking entry from 3rd and 6th seated chaser from the side of point B, and after taking entry from the 6th seated chaser back, the subject shall run up to point A.

Scoring: Time taken from starting point to finishing point in sec. to be considered as the score obtained of the subject.



B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³

t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



14. Rowing

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
14.	Rowing	Under 12	Physical Tests	
			Sit & Reach	Centimeters
			Vertical Jump	Meters
			500 m Rowing Ergo meter	Min/Secs & Average Stroke Rate
			Sit up	Count (Number)
			Pull up	Count (Number)
			Push up	Count (Number)
			1 Repetition Maximum (RM) Bench pull	Count (Number)
			1RM Squat	Kilograms
			Wall Toss test	Score
			Stick Reaction Time Test	Meters
			Aerobic endurance capacity- Measuring VO ₂ Max on a Rowing Ergometer	l/min (litters per minute) or ml/kg/min

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

Test No. 1: Sit & Reach Test

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box).

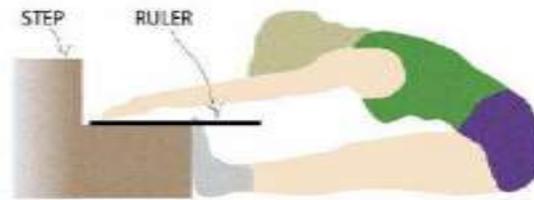


Fig 1. Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: Three trials are given and best one is recorded in cm for analysis.

Test No.2: Vertical Jump Test

- Purpose:** To measure the explosive power of lower limbs (legs).
- Equipment:** Measuring Tape, Bench, Chair, Chalk Powder, and Duster.
- Marking:** A vertical wall is prominently marked in centimeters up to 3.50 meters.

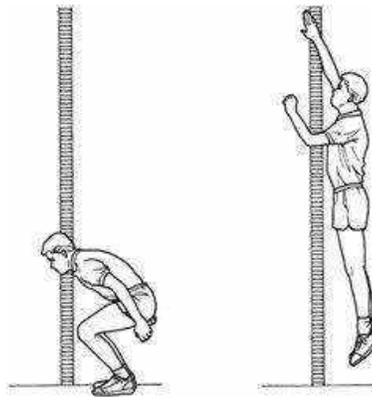


Fig. 2: Vertical Jump Test

- Procedure:** The athlete dips his or her fingers in chalk powder and stands side-wise against the wall, keeping the arm raised completely above the head and claps the extended hand marked with chalk on the finger straight. The athlete jumps as high up as possible and touches the wall. The reading shall be noted by keeping eyes in level with the chalk mark on the progressed marking. Three attempts are permitted.
- Scoring:** The standing reach is subtracted from the jumping reach. The score shall be the best of three jumps measured in cm.

Test No.3: 500 M Rowing Ergometer

- Purpose:** To measure total body anaerobic power. The test is designed to completely exhaust all anaerobic energy production pathways.

Equipment: Concept IID rowing ergometer (or equivalent). A specific drag factor needs to be set.

Procedure: It has to be ensured that the correct drag factor is set correctly with the preferred display option selected on screen (see comments below). Sit ready to start the 500m test. The aim of the test is to cover the 500m in the shortest possible time, and one should be exhausted at the completion of the 500m trial. Experience has shown that better scores are achieved with an even split (same time for first 250 as for the second 250m) rather than starting conservatively and then coming home strong, or going out too fast and not being able to complete the distance.

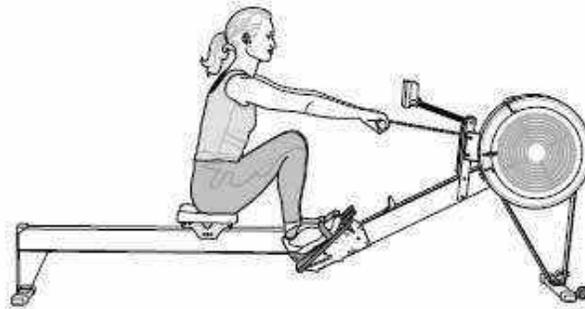


Fig 3. 500 M Rowing Ergometer

Scoring: The time taken to complete the 500m in minutes and seconds and the average stroke rate is recorded.

Test No.4: Sit Ups

Purpose: To measure explosive Abdominal Strength

Equipment: Floor/ Ground, Stop Watch

Procedure:

The athlete assumes back lying position on the mat keeping her arms over the head. On the command "GO" he/she energetically lifts the legs and upper body and touches his/her feet with the hands. This is called sit-ups in "V"-position. He/she performs maximum sit-ups in picked position in 60 seconds. The time keeper starts taking time on the command "GO" and stops the watch at 60 seconds.

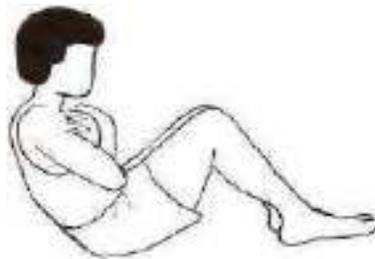


Fig 4. Sit Ups

Scoring:

Maximum number of Sit Ups performed in 60 seconds will be his/her score.

Test No. 5: Pull Ups

Purpose:

To measure strength endurance of arms and shoulders (Upper body)

Equipment:

Horizontal bar, Stop watch, Paper and Pencil



Fig 5. Pull Ups

Procedure:

The subject should step up to the bar and grasp it with the palms facing towards them. Arms should be fully extended. Cross ankles and bend knees. It is necessary pull the body up until the elbows are completely bent and close to the body, reaching the chin to the bar. Lower body until the arms and legs are fully extended in the starting position. This counts one chin up for men players. A player should perform as many repetitions as he can.

For women, one should step up to the bar and grasp it with the palms facing them. Arms should be fully extended. Cross ankles and bend the knees, pull the body up until the elbows are bent at 90°. In case of women, the maximum time a girl hold in that position is recorded and that becomes her score.

Test No. 6: Push Up

Purpose:

The push-up fitness test (also called the press up test) measures upper body strength and endurance.

Equipment:

Floor mat, metronome (or audio tape, clapping, drums), stopwatch, wall, chair.



Fig 6. Push Up

Procedure:

A standard push-up begins with the hands and toes touching the floor, the body and legs in a straight line, feet slightly apart, the arms at shoulder width apart, extended and at a right angle to the body. Keeping the back and knees straight, the subject lowers the body to a predetermined point, to touch some other object, or until there is a 90-degree angle at the elbows, then returns back to the starting position

with the arms extended. This action is repeated, and the test continues until exhaustion, or until they can do no more in rhythm or have reached the target number of push-ups.

Scoring: The number of correctly completed push-ups in 1 minute is recorded.

Test No. 7: 1 RM Bench Pull

Purpose: To measure upper body muscular endurance.

Equipment: A bench with adjustable height capacity (allow enough room underneath to permit full extension of the arms), 20kg Olympic bar with collars, a selection of 5kg and 10kg free weights. The weights should be set at 25kg for females and 40kg for males (make sure you include the 20kg Olympic barbell plus the mass of any collars).

Procedure: The bench height is set so that the subject can comfortably grip the bar while the weight is off the ground in the hang position. The bench should be horizontal to the ground. The subject lies prone (face down) on the bench with arms extended below the bench. The subject takes a shoulder wide overhand grip on the bar and pulls it up until the bar makes contact with the bottom of the bench, ensuring that the elbows are kept out and the chest on the bench. Subjects must only move their arms and shoulders in lifting the weight, the remainder of the body (head, trunk and legs) must remain still throughout the movement (an assistant may hold the legs down). Once the bar makes contact with the bench, the subject extends their arms, lowering the weight in a controlled manner back to the starting hang position without touching the ground. The subject maintains a continuous movement sequence at approximately one full repetition every two seconds. As many bench-pull possible are performed.

Scoring: The total number of correctly completed bench pulls (see technical violations) are recorded (whole numbers). One repetition equals a full pull up and release down to the starting hang position.

Test No. 8: 1RM Squat

Purpose: To measure lower body maximum strength.

Equipment: Various free weights and a barbell.

Procedure: After an adequate warm up, the subject stands under the bar, with feet shoulder-width apart. The knees should be in line with the toes. Take the weight on your shoulders, then bend at the knees and hips to lower the body. Ensure the head and neck are in a neutral position with eyes facing forward (avoid rounding of the spine). Lower the body until the knees is at a right angle, then push back up to a standing position. Move in a slow, smooth, and continuous movement.



Fig 7. 1RM Squat

Scoring: The maximum weight lifted is recorded. To standardize the score, it may be useful to calculate a score proportional to the person's bodyweight.

Test No. 9: Wall Toss Test

- Purpose:** To measure hand-eye coordination
- Equipment:** Tennis ball or baseball, smooth, and solid wall, marking tape, stopwatch (optional)

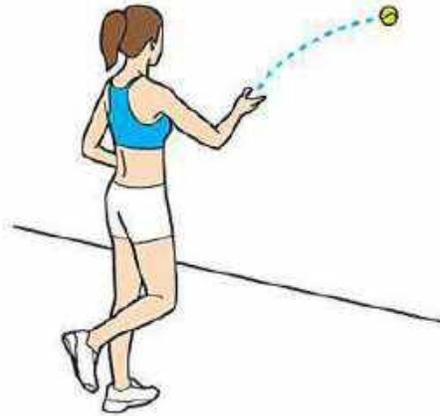


Fig 8. Wall Toss Test

- Procedure:** A mark is placed a certain distance from the wall (e.g. 2 meters, 3 feet). The person stands behind the line and facing the wall. The ball is thrown from one hand in an underarm action against the wall, and attempted to be caught with the opposite hand. The ball is then thrown back against the wall and caught with the initial hand. The test can continue for a nominated number of attempts or for a set time period (e.g. 30 seconds). By adding the constraint of a set time period, you also add the factor of working under pressure.

- Scoring:** This table lists general ratings for the Wall Toss Test, based on the score of the number of successful catches in a 30 second period

RATING	SCORE (in 30 seconds)
Excellent	>35
Good	30-35
Average	20-29
Fair	15-19
Poor	<15

Test No. 10: Stick Reaction Time

Purpose: To measure reaction time, hand-eye quickness and attentiveness.

Equipment: 1-meter long ruler or Yardstick, calculator.

Procedure: The person to be tested stands or sits near the edge of a table, resting their elbow on the table so that their wrist extends over the side. The assessor holds the ruler vertically in the air between the subject's thumb and index finger, but not touching. Align the zero mark with the subject's fingers.

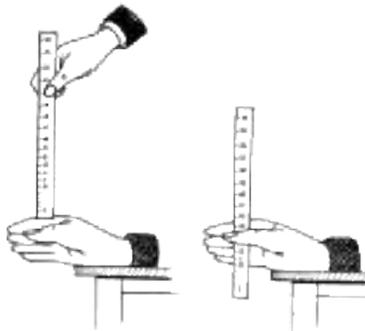


Fig 9. Stick Reaction Time

The subject should indicate when they are ready. Without warning, release the ruler and let it drop - the subject must catch it as quickly as possible as soon as they see it fall. Record in meters the distance the ruler fell. Repeat several times (e.g. 10 times) and take the average score.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



15. Shooting

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
15.	Shooting	Under 12	Physical Tests	
			Bent-Arm Hang test	Seconds
			Sit Ups	Count (Number)
			Sit and Reach	Centimeters
			Flamingo Balance	Count & Score
			Single leg balance test (closed eyes)	Score
			Hand Grip	Maximum Weight (Kg)
			Plate Tapping	Time
			Push Ups	Count (Number)
			Modified Pull Ups	Count (Number)
			Hip and Waist Circumference	Centimeters
			Wall Squat	Time (Seconds)
			Shoulder Stretch	Yes or No
			2Kg Medicine ball Throw	Centimeters
			12 minutes Run Test	ml/kg/min
			2 minutes Dribble Test	Count & Score
Bicycle ergometer W170	Watts (W/kg)			

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

Test No. 1: Bent-Arm Hang test

- Purpose:** To measure upper body relative strength and endurance
- Equipment:** Stopwatch, an elevated horizontal bar.
- Procedure:** The subject is assisted into position, the body lifted to a height so that the chin is level with the horizontal bar. The bar is grasped using an overhand grip (palms are facing away from body), with the hands shoulder width apart. The timing starts when the subject is released. They should attempt to hold this position for as long as possible. Timing stops when the person's chin falls below the level of the bar or the head is tilted backward to enable the chin to stay level with the bar.
- Scoring:** The total time held in the flex-arm position in seconds is recorded.

Test No.2: Sit Ups

- Purpose:** To measure explosive Abdominal Strength
- Equipment:** Floor/ Ground, Stop Watch
- Procedure:** The athlete assumes back lying position on the mat keeping her arms over the head. On the command "GO" he/she energetically lifts the legs and upper body and touches his/her feet with the hands. This is called sit-ups in "V" position. He/she performs maximum sit-ups in picked position in 60 seconds. The time keeper starts taking time on the command "GO" and stops the watch at 60 seconds.



Fig 1. Sit Ups

Scoring: Maximum number of Sit Ups performed in 60 seconds will be his/her score.

Test No.3: Sit & Reach

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: A Specified marked box

Procedure: The player was asked to sit down keeping his leg straight and heel together. The sole of the feet should touch the box as shown in diagram. He was asked to bend the trunk forward, with fingers in the front of the scale. The subject then slowly tried to reached forwards as much as possible, the fingertips of both hands moved parallel to each other and equally forward on scale and hold the position for 2 seconds. He was not permitted to flex their knees.

Scoring: Three trials were given and best one was recorded in cm for analysis.

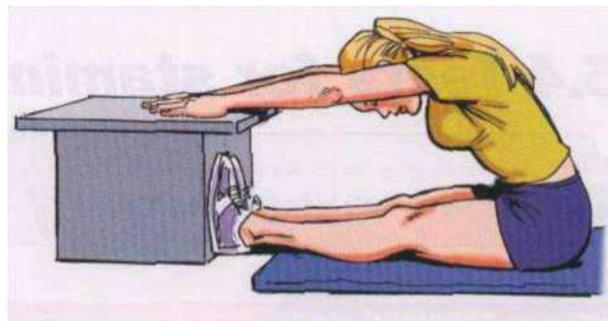


Fig2. Sit & Reach Test

Test No. 4: Flamingo Balance

Purpose: To assess the ability to balance successfully on a single leg.

Equipment: Stopwatch, metal beam 50cm long, 5cm high and 3cm wide (the beam is stabilized by two supports at each end, and should have a non-slip surface)



Fig 3. Flamingo Test

Procedure: Stand on the beam with shoes removed. Keep balance by holding the instructor's hand. While balancing on the preferred leg, the free leg is flexed at the knee and the foot of this leg held close to the buttocks. Start the watch as the instructor lets go. Stop the stopwatch each time the person loses balance (either by falling off the beam or letting go of the foot being held). Start over, again timing until they lose balance. Count the number of falls in 60 seconds of balancing. If there are more than 15 falls in the first 30 seconds, the test is terminated and a score of zero is given.

Scoring: The total number of falls or loss of balance in 60 seconds is recorded.

Test No. 5: Single leg balance test closed eyes

- Purpose:** To assess static postural and balance control of the athlete.
- Equipment:** Medium density foam pad (approximately 50 cm x 40 cm x 6 cm); stopwatch or timing device; an assistant to serve as a spotter.
- Procedure:** Identification of the athlete's dominant leg is to be done by asking them which leg they normally use to kick a ball. Then the opposite leg would be referred as the non-dominant leg. Then, the athlete would be instructed that they will have to stand still while balancing on the nondominant leg with the hands on their hips and their eyes closed for a period of 20 seconds.



Fig 4. Single Leg Balance Test (Closed Eyes)

During this time, evaluation will be done about how much one moves. If the feet move out of position, then one can open their eyes, return to the starting position, close the eyes, and continue the test. The athlete is signalled verbally to begin and record a point (upto a total of 10) whenever the following happens: -

- the hands leave the hips
- the eyes are opened
- stepping, stumbling, or falling occurs
- the client or athlete is out of position for longer than five seconds

- major bending at the hip joint occurs (>30 degrees in any direction)
- the forefoot or heel is lifted

Scoring: Following completion of the test (after 20 seconds has passed) on the stable surface, the athlete will return to the starting position and relax. Next, he/she will complete the same test but will stand on the foam pad.

Test No. 6: Hand Grip Test

Purpose: To measure the maximum isometric strength of the hand and forearm muscles.

Equipment: Handgrip dynamometer



Fig 4. Hand Grip Test

Procedure: The subject holds the dynamometer in the hand to be tested, with the arm at right angles and the elbow by the side of the body. The handle of the dynamometer is adjusted if required - the base should rest on the first metacarpal (heel of palm), while the handle should rest on middle of the four fingers. When ready the subject squeezes the dynamometer with maximum isometric effort, which is maintained for about 5 seconds. No other body movement is allowed. The subject should be strongly encouraged to give a maximum effort.

Scoring: The best result from several trials for each hand is recorded, with at least 15 seconds recovery between each effort.

Test No.7: Plate Tapping

Purpose: To assess the speed and the coordination of limb movement.

Equipment: Table (adjustable height), yellow discs (20cm diameter), rectangle (30 x 20 cm), stopwatch.

Procedure: If possible, the table height should be adjusted so that the subject is standing comfortably in front of the discs. The two yellow discs are placed with their centres 60 cm apart on the table. The rectangle is placed equidistant between both discs. The non-preferred hand is placed on the rectangle. The subject moves the preferred hand back and forth between the discs over the hand in the middle as quickly as possible. This action is repeated for 25 full cycles (50 taps).

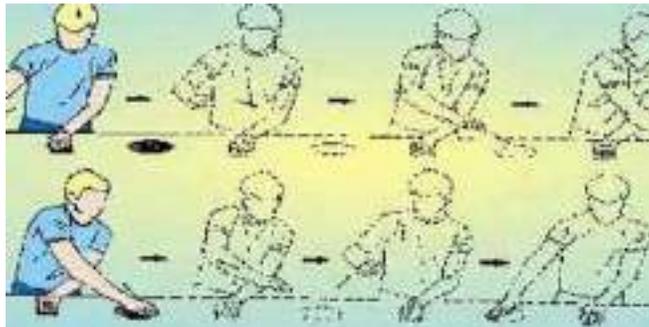


Fig. 5 Plate Tapping Test

Scoring: The time taken to complete 25 cycles is recorded. Performed the test twice and the best result is recorded.

Test No. 8: Push Ups

Purpose: The push-up fitness test (also called the press up test) measures upper body strength and endurance.

Equipment: Floor mat, metronome (or audio tape, clapping, drums), stopwatch, wall, chair.



Fig 6. Push Ups

Procedure: The athlete is taken to a work station (multi gym). Another athlete monitors the count. On the count of zero the coach blows the whistle and the timing of the athlete noted for maximum repetitions in one minute.

Scoring: Total number of repetitions taken. Grading will be given 1-0.75-0.5-0.25 (Higher number of leg press will be awarded highest grading).

Test No. 9: Modified Pull-Up Test

Purpose: This test measures upper body pulling strength and endurance.

Equipment: Pull-up apparatus (or any adjustable horizontal bar).

Procedure: The participant positions themselves with their shoulders directly below the horizontal bar, then reaches up to grip the bar slightly wider than shoulder width using an overhand grip. The hips are lifted so that

the body is straight and the arms fully extended with the elbows locked. Weight should be resting on the heels of the feet. They then pull their body up towards the bar until the chin rises above the elastic band, keeping the body straight. Repeat as many times as possible, ensuring that the chin reaches the elastic for each repetition.

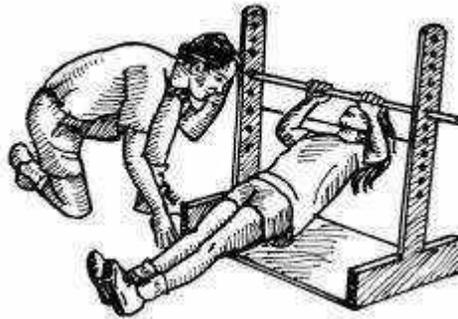


Fig 7. Modified Pull Up

Scoring: The maximum number of correctly performed pull ups is recorded.

Test No. 10: Hip and Waist Circumference

Purpose: To determine the ratio of waist circumference to the hip circumference, as this has been shown to be related to the risk of coronary heart disease.

Equipment: Tape measure

Procedure: A simple calculation of the measurements of the waist girth divided by the hip girth. Waist to Hip Ratio (WHR) = G_w / G_h , where G_w = waist girth, G_h = hip girth. It does not matter which units of measurement you use, as long as it is the same for each measure.

Scoring: The table below gives general guidelines for acceptable levels for hip to waist ratio. Acceptable values are excellent and good. Any units for the measurements (e.g. cm or inches) is used as it is only the ratio that is important.

Values	Male	Female
Extreme	> 1.00	> 0.90
High	0.95 - 1.00	0.85 - 0.90
Average	0.90 - 0.95	0.80 - 0.85
Good	0.85 - 0.90	0.75 - 0.80
Excellent	< 0.85	< 0.75

Test No. 11: Wall Squat Test

Purpose: To measure the strength endurance of the lower body, particularly the strength of your quads, hamstrings and glutes.

Equipment: Flat non-slip floor, smooth wall and a stopwatch.

Procedure: Stand comfortably with feet shoulder width apart and about 2 feet from the wall, with your back against a smooth vertical wall. Slowly slide your back down the wall to assume a position with both your knees and hips at a 90° angle. Move the feet distance from the wall if required. Ensure that the feet are flat on the ground, the back flat against the wall, and the knees and hips are at right angles. The knees should be directly above your ankles (rather than over your toes), and the thighs parallel to the ground. The timing starts when the correct position is assumed, and is stopped when the subject cannot maintain that position.



Fig 8. Wall Squat Test

Scoring: Record the total time in seconds that the position was held.

Test No. 12: Shoulder Stretch Test

Purpose: To measure upper arm and shoulder girdle flexibility

Equipment: None

Procedure: This test is done in the standing position. Place one hand behind the head and back over the shoulder, and reach as far as possible down the middle of your back, your palm touching your body and the fingers directed downwards. Place the other arm behind your back, palm facing outward and fingers upward and reach up as far as possible attempting to touch the fingers of each hand. The tester may be required to direct the subject so that the fingers are aligned. See if the subject can touch their fingers. Test the left and right shoulders.



Fig 9. Shoulder Stretch Test

Scoring: The score is recorded as either a YES or NO, for each side.

Test No. 13: 2Kg Medicine Ball Throw

- Purpose:** To measure back and explosive strength of the upper body.
- Equipment:** Medicine ball of 2kg, Measuring Tape, One-meter diameter circle.



Fig10. Medicine ball throw

- Procedure:** The subject sits in the centre of the one-meter diameter's circle with his/her legs stretched forward comfortably. Legs should also be securely apart and spine should be in line with the centre of the circle as shown in fig. 5. From this posing subject throws the ball up and forward as far as possible with both the hands over the head. Three attempts are permitted.
- Scoring:** The score shall be best of the three throws where a horizontal distance shall be measured from the centre of the circle in centimeters.

Test No. 14: 12 minutes Run Test

- Purpose:** To test aerobic fitness (the ability of the body to use oxygen to power it while running).
- Equipment:** Flat oval or running track, marker cones, recording sheets, stop watch.
- Procedure:** Place markers at set intervals around the track to aid in measuring the completed distance. Participants run for 12 minutes, and the total distance covered is recorded. Walking is allowed, though the

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



16. Swimming

A. Talent Identification Test Matrix for Grassroot Talent

S.No.	Sports	Categories	Tests	Measurement Units
16.	Swimming	Under 12	Physical Tests	
			Sit & Reach Test	Centimeters
			Sit Up	Number (Count)
			Plank Test	Seconds & Minutes
			Reaction Test	Grading
			Speed Test	

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description Of Talent Identification Tests

Test No. 1: Sit & Reach Test

Purpose: The purpose of this test was to measure the subject's trunk flexibility
Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box)

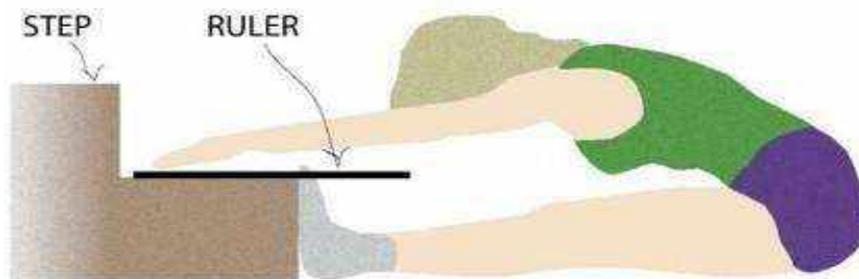


Fig 1.Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: The score is recorded to the nearest centimeter or half inch as the distance reached by the hand. Some test versions use the level of the heel touching the ground as the zero mark, while others have the zero mark 9 inches before the level of the heel touching the ground. Three trials are given and best one is recorded in cm or Inches for analysis.

Test No. 2: Sit up Test

Purpose: To assess strength in abdominal muscles

Equipment: Whistle and stop watch



Fig 2. Sit up Test

Procedure: The athlete lies down on the mat on the floor facing upwards and folds his/her legs at the knees. Another athlete holds his/her knees in folded position. On the count of zero, the coach blows the whistle and the timing of the athlete is noted for maximum repetition in one minute.

Scoring: Total number of sit ups taken in one minute. Grading will be given 1-0.75-0.5-0.25 (Higher number of sit ups will be awarded highest grading).

Test No. 3: Plank Test

Purpose: To help in assessing the endurance of the back/core stabilizing muscles

Equipment: Flat and clean surface, stopwatch, recording sheets, pen



Fig 3.Plank Test

Procedure: The athlete is made to raise the body and squat on the elbow. Time taken to hold in the position is noted.

Scoring: Scoring is recorded as given below:

Excellent	2-5 minutes
Very Good	1-2 minutes
Average	30-60 second
Poor	15-30 second

Test No. 4: Reaction Test

Purpose: To assess reaction time, hand eye coordination and attention of an archer

Equipment: Whistle and ruler.

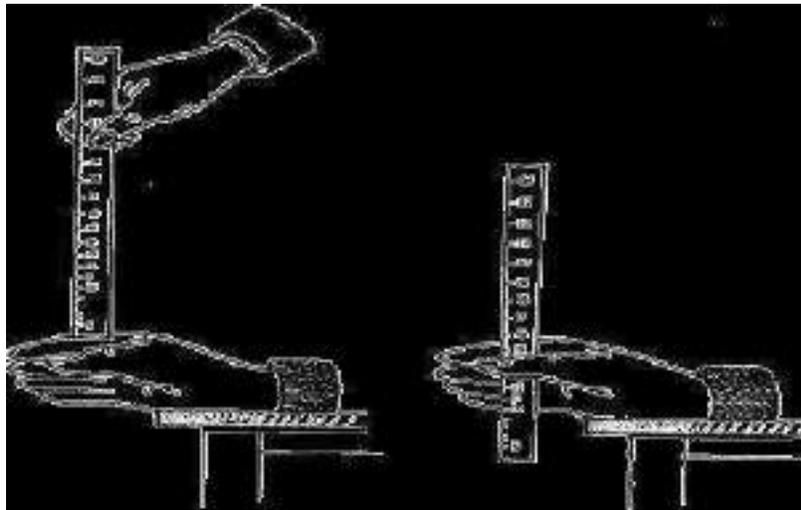


Fig 4.Reaction Test

Procedure: The ruler is held by the assistant between the outstretched index finger and thumb of the athlete's dominant hand so that the top of the athlete's thumb is level with the zero-centimeter line on the ruler. The assistant instructs the athlete to catch the ruler as soon as possible after it has been released. The assistant releases the ruler and the athlete catches the ruler between their index finger and thumb as quickly as possible. The assistant is to record the distance between the bottom of the ruler and the top of the athlete's thumb where the ruler has been caught. The test is repeated two more times and the average value used in the assessment.

Scoring: The average distance the meterstick fell is to be calculated and then record the time taken by the ruler to fall the measured distance (distance in cm, time in seconds). A table based on the formula - $t = \sqrt{2d / g}$, where d = the distance the ruler fell in meters, g = the acceleration of gravity (9.8 m/s^2), and t = the time the ruler was falling (seconds) is used to calculate this time. Grading out of 7 points.

(Adapted from Davis, 2000)

Scoring	Distance
7	<7.5cm
5	7.5 – 15.9cm
3	15.9 – 20.4cm
1	20.4 – 28cm
0	>28cm

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



17. Table Tennis

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
17.	Table Tennis	Under 12	Physical Tests	
			Kraus Weber strength test	Pass/ Fail
			Harvard Step Test	Fitness Index score
			Meridith Physical Growth	Centimeter (Height) Kg (Weight) BMI (Range)
			Sit & Reach test	Centimeters
			Skill Tests	
			Nelson's hand/leg reaction time test	Meters and Seconds
			Semo Agility Test	Time (Seconds)
			Flamingo Balance Test	Count & Score

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

(I) DESCRIPTION OF PHYSICAL TESTS

Test No.1: Kraus Weber Strength Test

The Kraus Weber Strength Test comprises of six-item medical fitness test that measures the strength and flexibility of key postural (core) muscles. The test consists of five strength challenges and one general flexibility procedure.

(i) Kraus-Weber Abdominal Strength Test 1

- Purpose:** To assess the strength of the abdominal and psoas muscles.
- Equipment:** Flat surface
- Procedure:** The subject lies down in supine position i.e., flat on his back and hands behind his neck. The legs are straight. The examiner holds the feet to keep them on the ground. The subject is asked to perform one sit-up. If he performs one sit-up, he passes this test. If he cannot raise his shoulders from the table or ground, his score is zero.

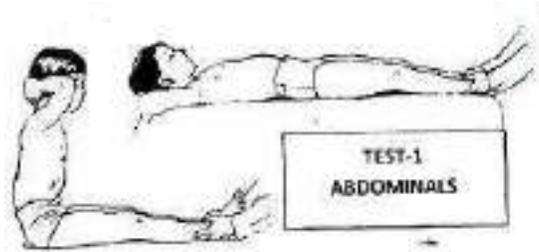


Fig 1 (i). Kraus Weber Abdominal Strength Test 1

Scoring: This test is graded on a pass-fail basis. The Kraus-Weber test comprises 6 exercises - being unable to perform even one of the six exercises results in failing the test.

(ii) Kraus-Weber Abdominal Strength Test 2

Purpose: To assess the strength of the abdominal muscles.

Equipment: A flat surface

Procedure: The lying position for this test is the same as the first K-W test - the subject lies down in a supine position flat on his back and hands behind his neck, except that this time the knees are bent. The examiner holds the feet to keep them on the ground. The subject is required to perform one sit-up. If he is able to perform a full sit-up, he passes this test. If he is unable to raise his shoulders from the table or ground, the score is zero.

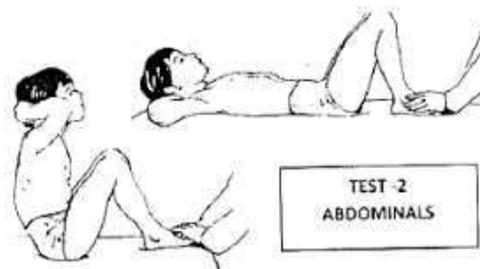


Fig 1 (ii). Kraus-Weber Abdominal Strength Test 2

Scoring: This test is graded on a pass-fail basis. The Kraus-Weber test comprises 6 exercises - being unable to perform even one of the six exercises results in failing the test.

(iii) Kraus-Weber Abdominal Strength Test 3

Purpose: To assess the strength of the psoas and lower abdominal muscles.

Equipment: Flat surface, ruler, stopwatch

Procedure: Subject lies in supine position i.e., flat on his back with his hands behind the neck. He is asked to raise his feet 25cm (10 inches) from the ground. His legs should be straight, no bending at the knee. The examiner counts to 10 seconds.

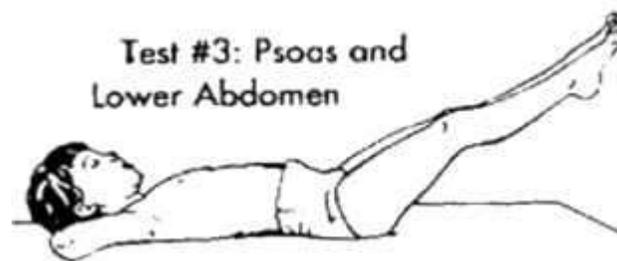


Fig 1(iii). Kraus-Weber Abdominal Strength Test 3

Scoring: This test is graded on a pass-fail basis. The test is passed if the subject holds the position for ten seconds. The Kraus-Weber test comprises 6 exercises - being unable to perform even one of the six exercises results in failing the test overall.

(iv) Upper Back Muscle Strength (Kraus-Weber Test 4)

Purpose: To assess the strength of the upper back muscles.

Equipment: Flat surface, pillow, stopwatch

Procedure: The subject lies in prone position i.e., face down on his stomach with a pillow under his lower abdomen and his hands behind his neck. The examiner holds his feet down (compared to the other Kraus Webber

back strength test in which the chest is held down). The subject is asked to raise his chest, head and shoulders, while the examiner counts to 10 seconds. He passes this test if he is able to hold the exact position up to 10 seconds.

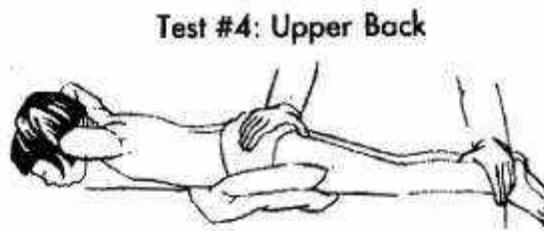


Fig 1(iv). Upper Back Muscle Strength (Kraus-Weber Test 4)

Scoring: This test is graded on a pass-fail basis. The test is passed if the subject holds the position for ten seconds. The Kraus-Weber test comprises 6 exercises - being unable to perform even one of the six exercises results in failing the test overall.

(v) Lower Back Muscle Strength (Kraus-Weber Test 5)

Purpose: To assess the strength of the lower back muscles.

Equipment: Flat surface, pillow, stopwatch, recording sheets.

Procedure: The subject lies in prone position i.e., face down on his stomach with a pillow under his lower abdomen and his hands behind his neck. The examiner holds his chest down (compared to the other Kraus Webber back strength test in which the feet are held down). The subject is asked to raise his feet, keeping his knees straight. The examiner counts to 10 seconds.



Fig 1(v). Lower Back Muscle Strength (Kraus-Weber Test 5)

Scoring: This test is graded on a pass-fail basis. The test is passed if the subject holds the position for ten seconds. The Kraus-Weber test comprises 6 exercises - being unable to perform even one of the six exercises results in failing the test overall.

(vi) Floor Touch Test (Kraus-Weber Test 6)

Purpose: To measure the flexibility of the lower back and hamstring muscles. Lower back flexibility is important because tightness in this area is implicated in lumbar lordosis, forward pelvic tilt and lower back pain.

Equipment: Stopwatch

Procedure: The subject stands erect, bare-footed, hands at sides and feet together. The subject then is asked to lean down slowly to touch the floor with their finger-tips for 10 seconds. Bouncing and jerking is not allowed. The examiner holds the knees straight in order to prevent any bending.

Scoring: This test is graded on a pass-fail basis. The test is passed if the subject holds the position correctly for ten seconds. The Kraus-Weber test comprises 6 exercises - being unable to perform even one of the six exercises results in failing the test overall.



Fig 1(vi). Floor Touch Test

Test No.2: Harvard Step Test

Purpose: To assess the aerobic fitness

Equipment: Step or platform 20 inches / 50.8 cm high, stopwatch, metronome or cadence tape.

Procedure: The athlete steps up and down on the platform at a rate of 30 steps per minute (every two seconds) for 5 minutes or until exhaustion. Exhaustion is defined as when the athlete cannot maintain the stepping rate for 15 seconds. The athlete immediately sits down on completion of the test, and the total number of heart beats is counted between 1 to 1.5 minutes after finishing (see measuring heart rate). This is the only measure required if using the short form of the test. If the long form of the test is being conducted, there is an additional heart rate measures at between 2 to 2.5 minutes, and between 3 to 3.5 minutes. See some videos of Harvard Step tests being performed.



Fig 2. Harvard Step Test

Scoring:

The Fitness Index score is determined by the following equations. For example, if the total test time was 300 seconds (if completed the whole 5 minutes), and the number of heart beats between 1-1.5 minutes was 90, between 2-2.5 it was 80 and between 3-3.5 it was 70, then the long form Fitness Index score would be: $(100 \times 300) / (240 \times 2) = 62.5$. Note: you are using the total number of heart beats in the 30 second period, not the rate (beats per minute) during that time.

Test No. 3: Meridith Physical Growth

Test No. 4: Sit & Reach Test

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box).

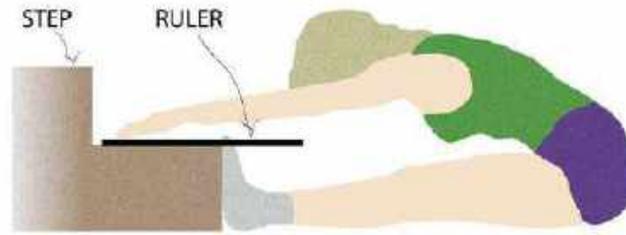


Fig 3. Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: Three trials were given and best one was recorded in cm for analysis.

(II) DESCRIPTION OF SKILL TESTS

Test No. 1: Nelson's Hand/Leg Reaction Time Test

Purpose: To measure reaction time, hand-eye quickness, and attentiveness.

Equipment: 1 meter long ruler or Yardstick, calculator.

Procedure: The person to be tested stands or sits near the edge of a table, resting their elbow on the table so that their wrist extends over the side. The assessor holds the ruler vertically in the air between the subject's thumb and index finger, but not touching. Align the zero mark with the subject's fingers. The subject should indicate when they are ready. Without warning, release the ruler and let it drop - the subject must catch it as quickly as possible as soon as they see it fall. Record in meters the

distance the ruler fell. Repeat several times (e.g. 10 times) and take the average score.

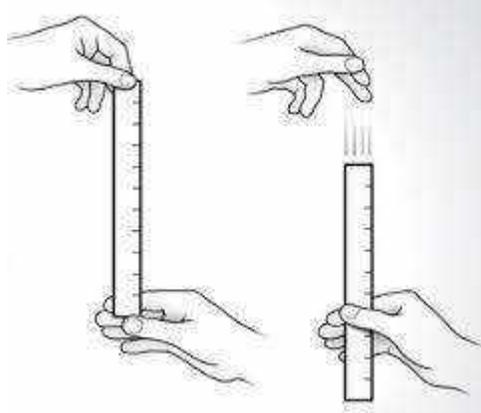


Fig 4. Nelson's hand reaction time test

Scoring: The average distance the meterstick fell is to be calculated and then record the time taken by the ruler to fall the measured distance (distance in cm, time in seconds). A table based on the formula - $t = \sqrt{2d / g}$, where d = the distance the ruler fell in meters, g = the acceleration of gravity (9.8 m/s^2), and t = the time the ruler was falling (seconds) is used to calculate this time.

OR

Nelson's Leg Reaction Time Test-

Purpose: To measure the foot reaction time of the subjects.

Equipment: Reaction time scale, Table or Bench, Wall space etc.

Procedure: The subject is asked to sit on a table which was about one inch away from the wall with his/her shoe off. The subject positioned his/her foot so that the ball of the foot was held about one inch from the wall with the heel resting on the table top about two inches from the table edge. The tester would hold the reaction time stick near the wall so that it hangs between the wall and subject's foot with the base line of the times

opposite to the end of the big toe. The subject is asked to look at the concentration zone and to react as soon as the time stick was dropped by pressing the times stick against the wall with the ball of the subject foot. A total of twenty trials would be given.

Scoring: The reaction time of each trial was recorded from the line just above the end of the big toe when the foot pressed the stick to the wall. Out of 20 trials the average of the middle ten trials ignoring the five fastest and five slowest trials were taken as the score of this test.

Test No. 2: Semo Agility Test

Purpose: To determine the general agility of the body in maneuvering forward, backward and sideward.

Equipment: Four cones with 9 inches base and 12 inches height, stop watch, measuring tape and marking powder.

Procedure: A rectangle of 12' by 19' feet is marked with adequate running space around it. Four plastic cones '9' by '9' inches base with '12' inches height, are put in every inside of the corner of the marked field. The subject stands on starting point 1 and on signal, starts side step from cone 1 to 2 and passed outside the corner cone 2 and back pedals from cone 2 to 3 and passes to the inside of the corner cone 3.

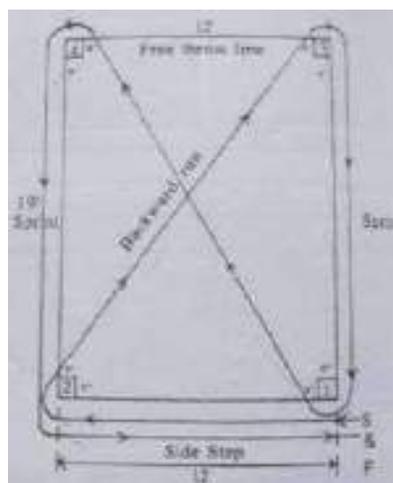


Fig5. Marking for Semo Agility test

Then, sprints forward from cone 3 to cone 1, outside the corner cone. The subject again made back pedal from cone 1 to cone 4 and passed to the inside of the cone 4. Then he/she makes sprint forward from cone 4 to cone 2 and passes outside of the corner cone 2. At last, he/she takes side step from cone 2 to the finishing line at cone 1.

Scoring: The score is the time taken on the better of two trials recorded to the nearest one hundredth of a second.

Test No. 3: Flamingo Balance

Purpose: To assess the ability to balance successfully on a single leg.

Equipment: Stopwatch, metal beam 50cm long, 5cm high and 3cm wide (the beam is stabilized by two supports at each end, and should have a non-slip surface)



Fig 3. Flamingo Test

Procedure: Stand on the beam with shoes removed. Keep balance by holding the instructor's hand. While balancing on the preferred leg, the free leg is flexed at the knee and the foot of this leg held close to the buttocks. Start the watch as the instructor lets go. Stop the stopwatch each time the person loses balance (either by falling off the beam or letting go of the foot being held). Start over, again timing until they lose balance. Count the number of falls in 60 seconds of balancing. If there are more than 15 falls in the first 30 seconds, the test is terminated and a score of zero is given.

Scoring: The total number of falls or loss of balance in 60 seconds is recorded.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1

18. Volleyball

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
18.	Volleyball	Under 12	Physical Tests	
			Absolute Vertical Jump	Centimeters
			20 mts Flying Test – For speed.	Time (Seconds)
			1 Kg Medicine Ball Throw- Upper body strength.	Meters
			Semo/T Test – For agility.	Seconds

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

Test No. 1: Absolute Vertical Jump (with approach)

Purpose: To assess the jumping ability of a volleyball player which include mainly the explosiveness of leg as well as using of trunk and shoulder strength during spike jump. It also includes the ability of a player to convert the horizontal velocity into vertical and synchronization of power of various body parts.

Equipment: Jumping apparatus, white powder, and recording sheet

Procedure: First take the standing reach with shoes of a player. Then ask the player to warm up. After warm up, the player puts white powder on the tip of the hitting hand fingers. Then the player was asked to jump as high as possible and touch on the jumping apparatus with approach run. Three trials were given and best one will be assessed.



1. Standing reach

2. Take off after approach run

3. Jump reach

Fig 1. Absolute Vertical Jump (With Approach)

Scoring: Deduct the standing reach from best one jump reach of the three trials to get absolute vertical jump.

Assessment: Following table will be used to for assessment.

Age in years	Absolute vertical jump (MALE) (cm)	Absolute vertical jump (FEMALE) (cm)
8	33+	30+
9	35+	33+
10	38+	35+
11	41+	38+
12	45+	41+
13	50+	45+
14	55+	50+
15	66+	62+
16	83+	67+
17	86+	69+
18	90+	70+
19	95+	72+
20	100+	75+

Test No. 2: 20 Meter Sprint

- Purpose:** To measure speed (reaction time, movement ability and acceleration ability).
- Equipment:** Area to mark 20-meter dash, stop watch, measuring tape and marking powder.
- Procedure:** Instructions related to test were given to the players before warm up. Then the players were asked to warm up. After warm up players were asked to take their position behind starting line one by one. On command 'Go' the player start running as fast as possible till he reaches the finish line. They were asked to slow down gradually after crossing finish line. Two trials were given and best one is recorded for analysis.
- Scoring:** The time elapsed from the start to when the subject crosses the finish line was recorded up to hundredth of a second.

Test No. 3: 1 Kg Medicine Ball Throw Upper body strength

- Purpose:** The purpose of this test was to measure shoulder power.
- Equipment:** 1kg medicine balls and an area marked off occupying a space of approximately 20 by 50 meters long, measuring tape, recording sheet.
- Procedure:** After warm up the subject was asked to throw 1kg medicine ball in overhead manner while standing behind the throwing line. He must not step on or across the throwing line.

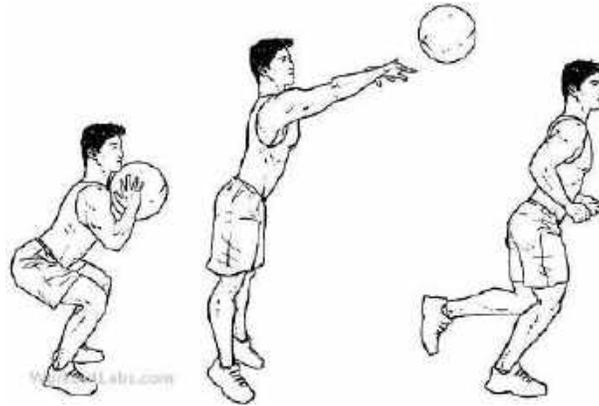


Fig 2. Medicine Ball Throw

Scoring: Three consecutive throws are allowed. The best throw data is being recorded in meters.

Test No. 4: Semo/T Test for agility

Purpose: To determine the general agility of the body in maneuvering forward, backward and sideward.

Equipment: Four cones with 9 inches base and 12 inches height, stop watch, measuring tape and marking powder.

Procedure: A rectangle of 12' by 19' feet was marked with adequate running space around it. Four plastic cones '9' by '9' inches base with '12' inches height, were put in every inside of the corner of the marked field. The subject stood on starting point 1 and on signal, started side step from cone 1 to 2 and passed outside the corner cone 2 and back pedal from cone 2 to 3 and passed to the inside of the corner cone 3. Then he sprinted forward from cone 3 to cone 1, outside the corner cone. He made back pedal from cone 1 to cone 4 and passed to the inside of the cone 4. Then he made sprint forward from cone 4 to cone 2 and passed outside of the corner cone 2. In the last, he took side step from cone 2 to the finishing line at cone 1.

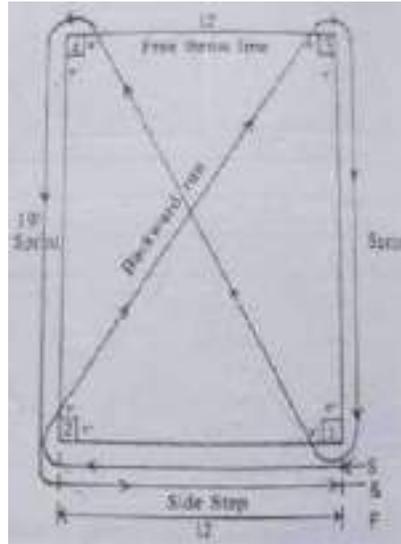


Fig 3.SemoAgility test

Scoring:

The score was the time taken on the better of two trials recorded to the near stone hundredth of a second.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³

t	Basophils	thou/mm ³
u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



19. Weightlifting

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
19.	Weightlifting	12-14 Years	Physical Tests	
			Standing Broad Jump	Centimeters
			Vertical Jump	Meters
			Push Ups	Count (Number)
			Sit Ups	Count (Number)
			Shuttle Run – 6 x 10M	Time (Minutes & Seconds)
			300 M Run	Time (Minutes & Seconds)
			1.5 miles/Cooper Test of 12 min for above 12 for endurance and VO2 Max	Meters
			Sports Specific Tests	
			Dead Lift	Maximum Kg
			Bench Press	Maximum Kg
			Squat	Maximum Kg

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

Test No.1: Standing Broad Jump

Purpose: To measure explosive Legs strength and body coordination

Equipment: Floor/ Ground, Measuring Tape, Marker



Fig 1. Standing Broad Jump

Procedure: The athlete stands behind a line marked on the ground with feet slightly apart. A two feet take-off and landing is used, with swinging of the arms and bending of the knees to provide forward drive. The subject attempts to jump as far as possible, landing on both feet without falling backwards. Three attempts are allowed.

Scoring: The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Three attempts, one after the other are given. All the three are marked. The longest distance jumped, the best of three attempts, will be the score of the athlete. The scoring is recorded in Meters.

Test No.2: Vertical Jump

- Purpose:** To measure the explosive power of lower limbs (legs).
- Equipment:** Measuring Tape, Bench, Chair, Chalk Powder and Duster.
- Marking:** A vertical wall is prominently marked in centimeters up to 3.50 meters
- Procedure:** The athlete dips his or her fingers in chalk powder and stand side-wise against the wall, keeping the arm raised completely above the head and clap the extended hand marked with chalk on finger straight. The athlete jumps as high up as possible and touch the wall. The reading shall be noted by keeping eyes in level with the chalk mark on the progressed marking. Three attempts are permitted.
- Scoring:** The standing reach is subtracted from the jumping reach. The score shall be best of three jumps. The scoring is recorded in centimeters.

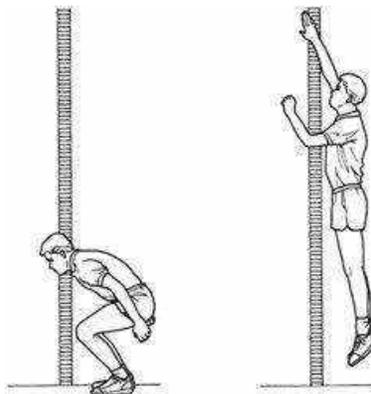


Fig. 2: Vertical Jump Test

Test No.3: Push Ups – Maximum in 1 minute

- Purpose:** The push-up fitness test (also called the press up test) measures upper body strength and endurance.
- Equipment:** Floor mat, metronome (or audio tape, clapping, drums), stopwatch, wall, chair.
- Procedure:** A standard push-up begins with the hands and toes touching the floor, the body and legs in a straight line, feet slightly apart, the arms at shoulder width apart, extended and at a right angle to the body. Keeping the back and knees straight, the subject lowers the body to a predetermined point, to touch some other object, or until there is a 90-degree angle at the elbows, then returns back to the starting position with the arms extended. This action is repeated, and the test continues until exhaustion, or until they can do no more in rhythm or have reached the target number of push-ups.
- Scoring:** Record the number of correctly completed push-ups in 1 minute.



Fig.3: Push up

Test No.4: Sit Ups – Maximum in 1 minute

Purpose: To measure explosive Abdominal Strength

Equipment: Floor/ Ground, Stop Watch

Procedure: The athlete assumes back lying position on the mat keeping her arms over the head. On the command "GO" he/she energetically lifts the legs and upper body and touches his/her feet with the hands. This is called sit ups in "V" position. He/she performs maximum sit ups in pike position in 30 seconds. The time keeper starts taking time on the command "GO" and stops the watch at 30 seconds.

Scoring: Maximum number of Sit Ups performed in 1 minute will be his/her score.



Fig 4: Sit Ups

Test No.5: Shuttle Run – 6 X 10M

- Purpose:** To determine the agility of the athlete.
- Equipment:** Stop watch, lime powder and a running course of 10 meters. Surface of the course should be non-slippery.
- Marking:** 10 meters of distance is marked by two parallel lines of 5 meters each.
- Procedure:** The athletes (2 together) stand behind the starting line. On the command of starting signal “GO”, athletes run faster, go nearest to the other line and touch it with the one hand, turn and come back to starting line, touch it with hand, turns and repeat it for a total of 5 times and 6th time, run over the line as fast as possible. Two chances are permitted.
- Scoring:** The better time taken by the athlete to complete the course of 6 X10 meters to the nearest 1/ 10 of a second is recorded as score of the test. The better attempt out of the two is considered for scoring purpose.

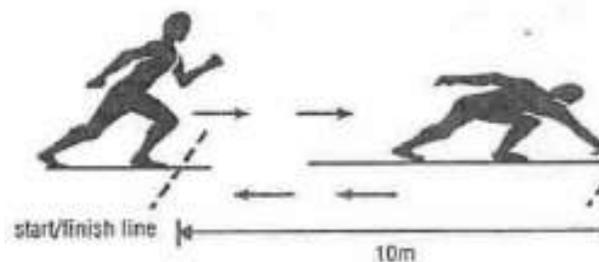


Fig 5. Shuttle Run Test

Test No.6: 300M Run

- Purpose:** To measure the endurance capacity of the subjects
- Equipment:** Stop watches, 400 m Track, Whistle
- Markings:** The 300m distance is marked on the field or a marked 400m track can be used where curve start is to be given.
- Procedure:** The athlete stands behind the starting line. On the starting signal athlete runs the 300 meters distance in 400m track as limited time as possible.
- Scoring:** The time to cover the 300 meters distance to nearer 1/10" of a second is recorded as score of the test.



Fig. 6: 400 meter Track

Test No.7: 1.5 miles/Cooper Test of 12 min for above 12 for endurance and VO2 Max

- Purpose:** To measure Aerobic Endurance Capacity
- Equipment:** Measured running track / 400 m. track, Stop Watch, Measuring Tape.
- Procedure:** After proper warm up, an athlete stands on the starting point & on command "GO", the athlete starts running in the track for 12 minutes.
- Scoring:** The distance covered by the athlete in 12 minutes by the athlete is recorded as score.

Test No. 8: Deadlift

- Purpose:** To measure lower body maximum strength
- Equipment:** Various free weights and a deadlift "hex-bar" bar (the bar splits around the subject so they can stand in the middle).
- Procedure:** After an adequate warm up, the subject stands inside the open space of the bar, with feet shoulder-width apart. The knees should be in line with the toes. Bend at the hips to lower the body and grasp the bar. Ensure the head and neck are in a neutral position with eyes facing forward (avoid rounding of the spine). To perform the deadlift, pull the bar straight up by extending the knees and hips in a slow, smooth, and continuous movement, until the legs are straight and the body upright. During the lifting motion, the subject must not allow the knees to collapse inward, and the shoulders must remain above the hips at all times. The heels must also maintain contact with the ground throughout the lift.



Fig 7. Deadlift

Scoring: The maximum weight lifted is recorded. To standardize the score, it may be useful to calculate a score proportional to the person's bodyweight.

Test No. 9: Bench Press

Purpose: To measure maximum strength of the chest muscle groups.

Equipment: Bench with safety, bar and various free weights.

Procedure: The subject should perform an adequate warm up. An example would be to warm up with 5-10 reps of a light-to-moderate weight, then after a minute rest perform two heavier warm-up sets of 2-5 reps, with a two-minute rest between sets. The subject should then rest two to four minutes, then perform the one-rep-max attempt with proper technique. If the lift is successful, rest for another two to four minutes and increase the load 5-10%, and attempt another lift. If the subject

fails to perform the lift with correct technique, rest two to four minutes and attempt a weight 2.5-5% lower. Keep increasing and decreasing the weight until a maximum lift is performed. Selection of the starting weight is crucial so that the maximum lift is completed within approximately five attempts after the warm-up sets.

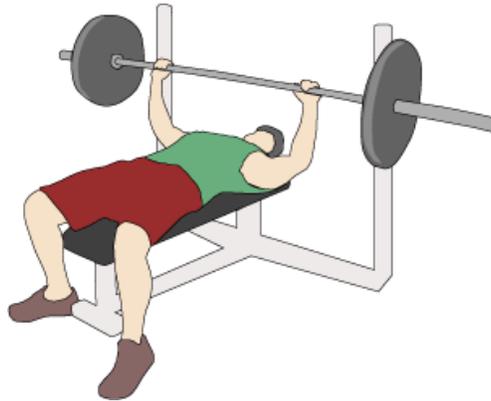


Fig 8. Bench Press

Scoring:

The maximum weight lifted is recorded. To standardize the score, it may be useful to calculate a score proportional to the person's bodyweight. The sequence of lifts should also be recorded as these can be used in subsequent tests to help in determining the starting lifts.

Test No. 10: Squat

Purpose:

To measure lower body maximum strength

Equipment:

Various free weights and a barbell.

Procedure:

After an adequate warm up, the subject stands under the bar, with feet shoulder-width apart. The knees should be in line with the toes. Take the weight on your shoulders, then bend at the knees and hips to lower the body. Ensure the head and neck are in a neutral position with eyes facing forward (avoid rounding of the spine). Lower the body until the knees is at a right angle, then push back up to a standing position. Move in a slow, smooth, and continuous movement.

Then, it starts with a 'check' 3-rep test with the weight of 40lbs or less, to check for correct technique. Then one repetition is performed for each weight in an ascending sequence. Less than 1-minute rest is allowed between reps. If a weight is failed, another attempt may be made.

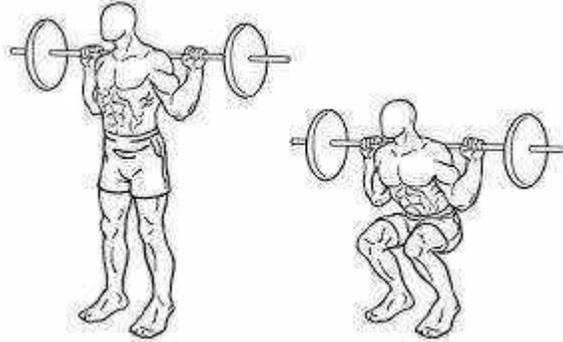


Fig 9. Squat

Scoring:

The maximum weight lifted is recorded. To standardize the score, it may be useful to calculate a score proportional to the person's bodyweight.

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1



20. Wrestling

A. Talent Identification Test Matrix for Grassroot Talent

S.No	Sports	Categories	Tests	Measurement
20.	Wrestling	Under 12	Physical Tests	
			Semo Agility/T Test	Time
			30M sprint for speed assessment	Time
			Sit and Reach test	Centimeters
			Sit Ups in 1 min	Count (Number)
			Standing Broad Jump	Centimeters
			1000M for aerobic endurance	Time (Seconds/Minutes)
			Rope Climbing 1 rep X 5 m for arm strength	Time
			200M run for anaerobic endurance	Seconds

Safety

The coaches have to ensure that the kids conduct a quick, general warm-up before starting with the first test. This might have to be conducted by the coaches themselves or the local PE teacher. To avoid any form of dehydration, the coaches have to ensure that the participants are drinking enough during the time of the test.

For all tests, the health and safety of all participants as well as coaches is of utmost importance. The coaches have to do a site-check before conducting the tests. Sprinting and jumping areas should be even, without any dents.

Every area should be marked with cones, no one except the performing athlete and the coaches involved are supposed to enter the sprint area as well as the landing area of the jumps and throws.

Sharp edges have to be covered. Equipment, which is not fulfilling the demands, has to be replaced, especially the obstacles and throwing implement.

Description of Talent Identification Tests

Test No. 1: Semo Agility /T Test

- Purpose:** To determine the general agility of the body in maneuvering forward, backward and sideward.
- Equipment:** Four cones with 9 inches base and 12 inches height, stop watch, measuring tape and marking powder.
- Procedure:** A rectangle of 12' by 19' feet was marked with adequate running space around it. Four plastic cones '9' by '9' inches base with '12' inches height, were put in every inside of the corner of the marked field. The subject stood on starting point 1 and on signal, started side step from cone 1 to 2 and passed outside the corner cone 2 and back pedal from cone 2 to 3 and passed to the inside of the corner cone 3. Then he sprinted forward from cone 3 to cone 1, outside the corner cone. He made back pedal from cone 1 to cone 4 and passed to the inside of the cone 4. Then he made sprint forward from cone 4 to cone 2 and passed outside of the corner cone 2. In the last, he took side step from cone 2 to the finishing line at cone 1.

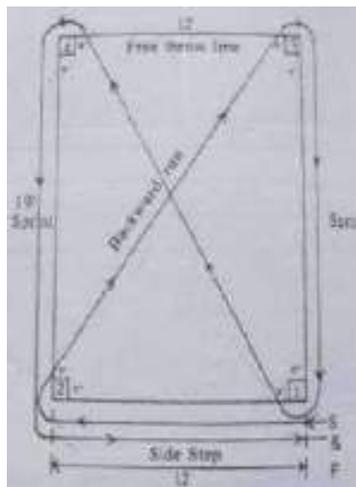


Fig 1.Semo agility test

Scoring: The score was the time taken on the better of two trials recorded to the near stone hundredth of a second.

Test No. 2: 30 Mtr Sprint

Purpose: To determine acceleration and speed.

Equipment: Measuring tape or marked track, stopwatch or timing gates, cone markers, flat and clear surface of at least 50 meters.



Fig 2. 30 meter Sprint

Procedure: The test involves running a single maximum sprint over 30 meters, with the time recorded. A thorough warm up should be given, including some practice starts and accelerations. Start from a stationary position, with one foot in front of the other. The front foot must be on or behind the starting line. This starting position should be held for 2 seconds prior to starting, and no rocking movements are allowed. The tester should provide hints for maximizing speed (such as keeping low, driving hard with the arms and legs) and encourage them to continue running hard through the finish line.

Scoring: Two trials are allowed, and the best time is recorded to the nearest 2 decimal places. The timing starts from the first movement (if using a stopwatch) or when the timing system is triggered, and finishes when the chest crosses the finish line and/or the finishing timing gate is triggered.

Test No.3: Sit & Reach

Purpose: The purpose of this test was to measure the subject's trunk flexibility.

Equipment: Sit and reach box (or alternatively a ruler can be used, and a step or box).

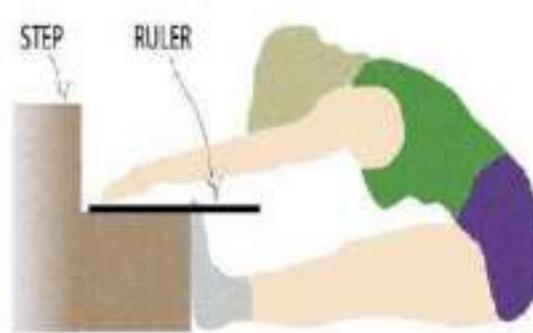


Fig 3. Sit & Reach Test

Procedure: This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed. The soles of the feet are placed flat against the box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down. With the palms facing downwards and the hands on the top of each other or side by side, the subject reaches forward along the measuring line as far as possible. Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Scoring: Three trials are given and best one is recorded in cm for analysis.

Test No.4: Sit Ups – Maximum in 1 minute

- Purpose:** To measure explosive Abdominal Strength
- Equipment:** Floor/ Ground, Stop Watch
- Procedure:** The athlete assumes back lying position on the mat keeping her arms over the head. On the command "GO" he/she energetically lifts the legs and upper body and touches his/her feet with the hands. This is called sit ups in "V" position. He/she performs maximum sit ups in pike position in 30 seconds. The time keeper starts taking time on the command "GO" and stops the watch at 30 seconds.



Fig 4: Sit Ups

- Scoring:** Maximum number of Sit Ups performed in 1 minute will be his/her score.

Test No. 5: Standing Broad Jump

- Purpose:** The purpose of this test is to test the explosive strength of lower body muscles.
- Equipment:** (i) A flat jumping area at least 20 feet in length.
(ii) A tape measure at least 10 feet long duct tape or masking tape
- Procedure:** (Using a Tape Measure)
- Place a 2- to 3-foot (0.6-0.9 m) length of tape on the floor to serve as a starting line.
 - The athlete stands with the toes just behind the starting line.

- The athlete performs a countermovement and jumps forward as far as possible.
- The athlete must land on the feet for the jump to be scored. Otherwise the trial is repeated.
- A marker is placed at the back edge of the athlete's rearmost heel, and the tape measure determines the distance between the starting line and the mark.
- The best of three trials is recorded to the nearest 0.5 inch or 1 cm.



Fig 5. Standing Broad Jump

Scoring: The measurement is taken from take-off line to the nearest point of contact on the landing (back of the heels). Three attempts, one after the other are given. All the three are marked. The longest distance jumped, the best of three attempts, will be the score of the athlete. The scoring is recorded in Meters.

Test No. 6: 1000M for aerobic endurance

Purpose: To measure aerobic fitness in the young or those of low fitness level

Equipment: Oval or running track, stopwatch.

Procedure: The aim of this test is to complete the required distance in the fastest possible time. On the signal, "ready," all participants line up behind the starting line. On the command 'Go!' the clock will start, and they will begin running at their own pace. Cheering or calling out the elapsed time is also permitted to encourage the participants. Walking is permitted but not encouraged.



Fig 6. 1000M for aerobic endurance

Scoring: The total time taken to complete the distance is recorded, in minutes and second.

Test No. 7: Rope Climbing 1 rep X 5 m for arm strength

Test No. 8: 200 M run for anaerobic endurance

Purpose: To measure anaerobic endurance

Equipment: Stopwatch, measuring tape, marker cones, a flat grass surface

Procedure: Marker cones and lines are placed 25 yards apart to indicate the sprint distance. Start with a foot on one line. When instructed by the timer, the player runs to the opposite 25-yard line, touches it with their foot, turns and run back to the start. This is repeated four times without stopping (covering 200 yards total). After a rest of five minutes, the test is repeated.

Scoring: Record the average of the two 300-yard shuttles [in sec.](#)

B. SPORTS SCIENCE EVALUATION

S.NO.	TEST NAME (Clinical)	UNITS
I	Complete Haemogram	
a	Haemoglobin	g/dL
b	Packed Cell Volume	%
c	RBC Count	mill/mm ³
d	MCV	fL
e	MCH	Pg
f	MCHC	g/dL
g	Red Cell Distribution Width (RDW)	%
h	Total Leukocyte count (TLC)	thou/mm ³
i	<i>Differential Leukocyte Count</i>	
j	Segmented Neutrophils	%
k	Lymphocytes	%
l	Monocytes	%
m	Eosinophils	%
n	Basophils	%
o	<i>Absolute Leukocyte count</i>	
p	Neutrophils	thou/mm ³
q	Lymphocytes	thou/mm ³
r	Monocytes	thou/mm ³
s	Eosinophils	thou/mm ³
t	Basophils	thou/mm ³

u	Platelet Count	thou/mm ³
v	ESR	Mm/hr
II	Urea	mg/dL
a	Bile salt	mg/dL
b	Bile pigment	mg/dL
c	Sr. Bilirubin	mg/dL

S.NO.	TEST NAME (Anthropometrical)	UNITS
a	Height	Cm
b	Weight	Kg
c	Body Mass Index	kg.m ⁻²
d	Sitting Height	Cm
e	Arm Span	cm
f	Waist Hip Ratio	waist(cm)/ hip(cm) *score <1