



## A study of selected motor fitness status of women national cricket team of Bangladesh

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### Abstract

Fitness is one of the most important components of individual performance capacity. Keeping on view in the present study the researcher has intended to analysis physical fitness of Bangladesh National Women Cricket Players on selected variables. Thirty national level women cricket players were (n = 30) randomly selected as subjects and their age were ranged between 17 and 25 years. During collection of data, the subjects were continuing their national camp for South Africa tour 2018. For the purpose of the study, motor fitness variables had considered for this study as speed, agility, abdominal strength and cardiovascular endurance. Necessary data were collected for agility, abdominal strength, speed and endurance with the help of AAPHER youth fitness Test items (such as; 4x10yard shuttle run, sit-ups, 50 yard dash and 9 minutes run or walk) and Pacer Test (Beep test). The collected data had analyzed by using the statistical package of SPSS software for mean and Standard Deviation and used different standard norms of those variables. The result of the study revealed that the Bangladesh National Women Cricket Players in 2018 demonstrated a good overall physical fitness level. Moreover, it understood that Bangladesh National Women Cricket players were better in locomotion, speed, agility, cardiovascular endurance and muscular strength endurance than the referred group.

**Keywords:** physical fitness, women players, cricket, national level

### Introduction: Background of the Study

Motor fitness is a word that explains an athlete's capability to carry out successfully during sports performance or in performing other activities. It is mixture of different element such as strength, agility, speed and flexibility. Motor fitness also demotes as to how a sportsperson can execute at his or her sport and involves a combination of agility, speed, balance, power and reaction time. Health related physical fitness of a person is primarily dependent on lifestyle related issues such as daily physical activity quantity. It is believed that the poor physical fitness level of a person is linked with higher mortality rate. Motor fitness also consider with the degree of ability to complete a physical task under various ambient situations. Usually it is achieved through correct nutrition, exercise, hygiene and rest. It is a set of attribute or characteristic that can be seen among the people and is related to the capability to do a assigned set of physical activities. The concept of Motor Fitness had initiated in mid-20<sup>th</sup> century by American Association of Health Physical Education and Recreation (AAHPER). The word 'Motor' means movement. Therefore, motor fitness basically means movement fitness. It is understood as a eagerness, watchfulness, or performance in respect to big muscle activity without undue fatigue. It indicates the capacity to move the body competently with a force over a rational span of time.

We are now receiving more benefits of fitness. Our current knowledge about fitness has been enhanced by the modern research. Neither what the benefits of fitness were, nor how to attain them was always so clear. Almost every book written

about sports and physical education discusses motor fitness; yet it is not for all time simple to discover satisfactory definition of fitness. Many authors talk about how difficult to some broader thought of total fitness, and then often a comprehensive explanation that relates motor fitness is explained encompassing physical fitness, and almost any other kind of pleasing characteristics that the author can take in. Motor Fitness according to Barrow (1968) is "a readiness or preparedness with special regard for big muscle activity without undue fatigue." Although it's a single term, to comprehend it and to work out, we want to focus on its components - Muscular Strength, Muscular Endurance, Muscular Power, Cardio-Vascular Endurance, Flexibility, Speed, Agility, Reaction Time, etc. All five components of fitness are necessary for competing at high levels, which is the concept, is seen as an essential element of any athlete's training regime (Santhosh Kuriakose K, 2015) [6].

Each sport requires different types of fitness training was. Some sports, as running requires a very high level of endurance and low level of other motor abilities. Sports like shooting and archery do not require high level of physical fitness. Performance of the players depends upon the motor fitness, physiological and psychological variables. More specifically, motor fitness referred to as efficient performance in such basic requirements as running, jumping, dodging, falling, climbing, swimming, lifting, weighing, carrying load, and enduring sustained effort in a variety of conditions. Movement in the games and sports are highly specific and are the result of training an experience for successful performance

of a skill, the elements of motor fitness contribute separately and interdependently. Strength, endurance, flexibility, speed, balance and co-ordination abilities are the prerequisites for motor action in any events (Manjit Singh, 2014) [4].

Cricket is the world's second most well-liked spectator sport after association football, and most widely played sports in the world and also of all major games in Bangladesh. It is the only one that has been jealously pre-served by all those who play or support it and is a sport characterized by short sprints, rapid acceleration or deceleration, turning, strength, power, balance etc. Physical variables are the most significant causative factors for better performance in all sports. The game of cricket requires substantial amount of physical fitness and mastery of skill. Cricket coaches now agree that conditioning is one of the most imperative aspects of winning games in national and international levels. In order to achieve top conditions, the cricketers must execute skills at high speed and often these skills must be performed after a cricketer has bowled or batted or fielded long innings. Thus, the winning team is in the best condition. Proper conditioning is commonly recognized as one of the most vital elements of any arduous sport. Any cricketer who cannot functions at maximum efficiency throughout a competition will not be to help the team to attain its goals. Therefore, it must be a priority for any cricket coach to work with cricket player's specific fitness in peak physical condition (Singh, 2014) [4].

Physical fitness plays an important role in all departments of the game of cricket but degree may differ and has a special significance in the fast bowling, attacking fielding including over – arm throw, running between wickets and batting. Every cricketer should endeavor to become at least a reliable fielder just as keenly as he tries to become a good batsman, a good bowler, irrespective of what standard he may attain as a batsman or a bowler, his side is vigorously handicapped if he is lacking in fielding ability. He should specialized and become outstanding in particular position (Dr.E. Amudhan, 2016) [1, 2].

Bangladeshi women's made their international debut when they played, and won, two matches against Thailand in July 2007 before participating in and winning the 2007 ACC

Women's Tournament. Bangladesh was granted One Day International (ODI) status in 2011 after finishing fifth in the 2011 Women's Cricket World Cup Qualifier. They played subsequently qualified for the 2014 ICC Women's World Twenty20, making their first appearance at a top-level women's international tournament. Bangladesh women team win their maiden Women's Asia Cup T20 2018 by stunned India by three wickets at the Kinrara Academy Oval, Kuala Lumpur and became the only other team to win the title besides India.

Purpose: Purpose of this study is to investigate the physical fitness status of the current women players of Bangladesh women's national team and to compare among the fitness components.

**Methodology**

In the section a detail procedure followed for the collection of data for the study and analysis of data have been described. The subject, criteria measure, instruments and tools used for collecting data and procedure for analysis of data have also been included.

**The Subject**

Total thirty (30) National level women cricket players from National Camp were randomly selected to serve as the subjects for this present study. Most of them were active players of Bangladesh women National Cricket team. The age of the selected players ranged between 17 to 25 years. Their mean age is 21 years, where minimum age 17 years and maximum age 25 years. They have 5-12 years of training age at the time of collection data of them used to practices under the supervision of qualified coaches. Presently they are in the National camp of senior cricket national team of Bangladesh.

**Criterion and measure**

Motor fitness level was the measuring criteria of present study. Motor fitness was measured by AAHPHERD test batteries (50 y dash, shuttle run, and sit-up), beep test and 9 Minutes run. Physical tests are given below:

**Table 1**

S. No.	Test	Parameters	Unit
01	50y Dash	Speed	Average time of two trials (Minutes/Seconds)
02	Shuttle Run (4*10y)	Agility	Average time of two trials (Minutes/Seconds)
03	Sit-up (Per minute)	Abdominal strength	Average quantity of two trials.
04	9 minutes Run	Cardiovascular endurance	Maximum distance covered (Kilometres)
05	Beep Test	Endurance	Maximum distance covered With music

**Instruments and Tools**

Based on the nature of variables of Physical Fitness Test, the investigator collected the association equipment's/instruments

were checked and their functional status has been verified accuracy in data collection. The following instruments and tools were used for collecting data in the present study.

**Table 2**

S.L.	Equipment/Instrument	S.L.	Equipment/Instrument
1	Digital stop watch for measuring time	6	Clapper as standing device
2	Different cones	7	PACER test cd
3	Marker	8	CD playback
4	Steel tape for measuring distance	9	More things
5	Whistles		

### Procedure of collecting data

The subjects were assembled in a place. Prior to the investigation, coaches and their players had been informed about the aim of the experimental study and its procedure. Approval and consent were taken together from the coaches and all respondents of the investigation. At first, the motor fitness was assisted by 50y dash for speed, 4x10y shuttle run for agility and sit-up for abdominal strength. Then Beep test and after days 9 minute run or walk test for cardiovascular endurance was conducted. These entire tests were conducted according to standard procedure. Two chances were given to each of subjects and noted the best result as a final score.

### Test Battery

The different tests were administered as follows: Data was collected through administration of motor fitness test. Those test items were:

- Height
- Weight
- 50Y dash
- Shuttle run
- Sit-up
- Beep test

#### a) Height

Subject height was measured by using SECA 206 mechanical measuring tape with measuring range 0 to 220 centimeters and 1 mm gradation. SECA 206 mechanical measuring tape was hanged on the wall with height over the floor of 200 centimeters. Subjects were instructed to remove their shoes and socks before measuring the height and to stand properly with assistance from the measurer before the height value was taken. Height was recorded to the nearest 0.5 cm.

#### b) Weight

TANITA weighing scale was used in this test to measure weight of the subjects with the capacity of 440lb and readability of 0.2lb (0.1 kg). Subjects were instructed to remove their shoes and socks before measuring and put out anything that can influence the weight reading from the pockets. The subjects were instructed to stand properly on the scale. Weight was recorded to the nearest 0.1 kg.

#### c) 50 Yard dash test

**Purpose:** To measure speed.

**Sex:** Recommended for Girls.

**Facilities and equipment's:** An area on a track, football field or playground with a starting and a finishing line. Two stopwatches or a split-second timer helpers and score sheet.

**Procedure:** After a short warm-up period, the student takes a position behind the starting line. Best results are obtained when 2 students run at the same time for Competition. The starter uses the command "Are you ready" and "Go" the latter is accompanied by a downward seep of the arm as a signal to the time the students runs across the finish line one trial is permitted.

**Instruction:** You may take any position behind the starting line as you wish on the command "Go" You were to run as fast as you can across the finish line. Do not slow up until you are across the finish line then you may slow down gradually.

**Scoring:** The score is the elapsed time to the nearest tenth of a second between the starting signal and the instant the student crosses the finish line. (Hunsicker & Reiff)

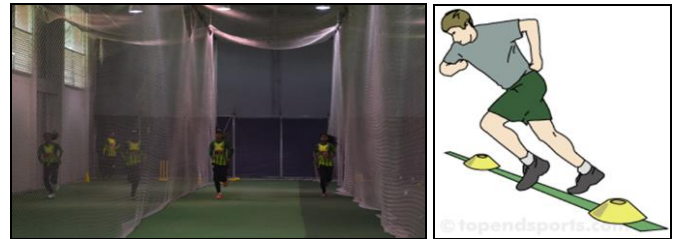


Fig 1: 50m dash

#### d) Shuttle run (4 x 10 yard)

**Purpose:** To measure Agility.

**Facilities and Equipment:** Steel tape, two stop-watches and marking powder.

**Description:** Lines are placed 10y apart with marking tape. The two blocks are placed adjacent to and outside of the line not being used as the starting line. On the signal "Go" the test performer (1) runs from the starting line to the blocks and pick up one; (2) returns to the starting line and placed the block behind the line; (3) runs to pick up the second block; and (4) returns to the starting line and place the second block behind the line.

**Scoring:** Two trials are permitted. The better time to the nearest one –tenth second is accepted as the score. Rest should be allowed between trials. The student is not permitted to throw or drop the blocks. Not touched, or when the pupil pushes off the floor with elbow Time was considered to rear half second. (Hunsicker & Reiff)

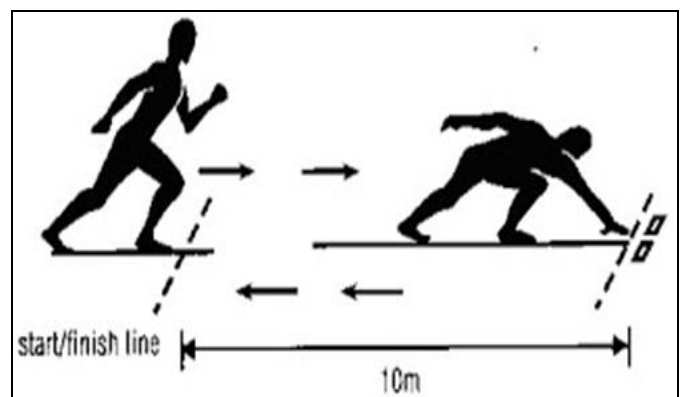


Fig 2: Shuttle Run

#### e) SIT-UP (Flexed leg)

**Purpose:** To measure the abdominal strength of the abdominal muscles.

**Age level and sex:** Recommended for girls.

**Facilities and Equipment:** The equipment needed for the test are: a mat to lie on, a bar (5 or 6 feet in length), a dumbbell bar, an assortment of weight plates, 12 inch rules, tape, score sheet, stop watch and some assistants.

**Procedure:** The student lies flat on the back with knees bent and feet on the floor with the heels no more than 1 foot from the buttocks. The knee angle should be no less than 90 degrees. The fingers are interlocked and placed behind the neck with the elbows touching the floor. The feet are held securely by a partner. The student then curls up to a sitting position and touches with the elbows the knees. This exercise is repeated as many times as possible in the time requirement.

**Instruction:** Your fingers must remain interlocked and in contact with the back of your neck at all times. You curl up from the starting position, but you may not push off the floor with an elbow. When you return to the starting position, your elbows must be flat on the floor or mat.

**Scoring:** One point is scored for each correct sit –up. The score is the maximum number of sit –ups completed in 60 seconds (Hunsicker & Reiff).

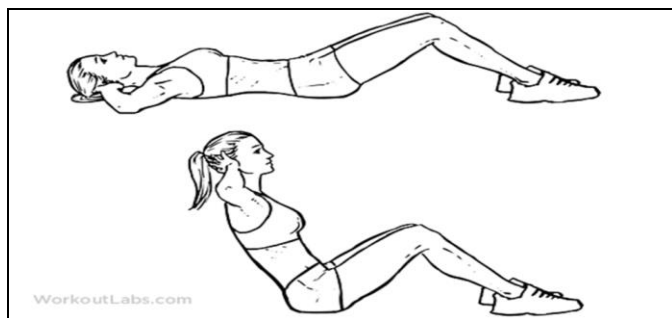


Fig 3: Sit-up

#### f) Bleep Test

**Equipment required:** Flat non-slip surface, marking cones, up to 20m measuring tape, PACER test cd, CD player, recording sheets.

**Procedure:** There are two variations of this test, with the lines placed either 15 or 20 meters apart. The 15 m test distance is used for the 2nd and 3rd grade or when there are space limitations. The test involves continuous running between the two lines in time to recorded beeps. The time between recorded beeps decrease each minute (level) requiring an increase in pace. The subjects continue until they are unable to keep pace with the beeps. There are a total of 21 levels, which would take approximately 21 minutes to complete.

**Scoring:** The score is the level and number of shuttles reached before the athlete was unable to keep up with the recording for two consecutive ends. The test scores can be entered into the Fitness Gram software for analysis. If the 15m version is used, there is a conversion chart to convert scores on the 15m PACER to a 20m score to enter in the Fitness Gram software.

**Reliability:** Reliability would depend on how strictly the test is run, and the practice allowed for the subjects. Several practice trials would be ideal.

**Advantages:** Large groups can perform this test all at once for minimal costs. Also, the test continues to maximum effort unlike many other tests of endurance capacity. If there is not enough room to conduct the 20m test, there is a 15m version. If required you can convert the score for the 15m to 20m versions.

**Disadvantages:** Practice and motivation levels can influence the score attained, and the scoring can be subjective. As the test is usually conducted outside, the environmental conditions can also affect the results.

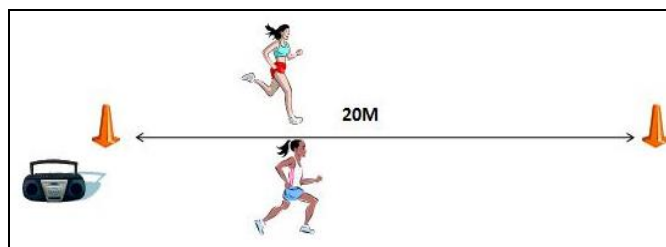


Fig 4A: Bleep Test

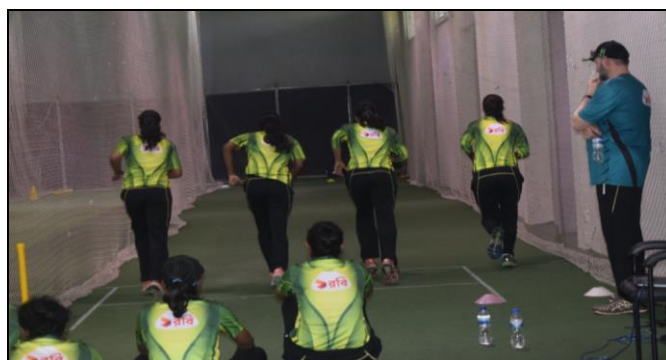


Fig 4B: Bleep test

#### Statistical technique employed

For analyzing and interpretation of data, statistical technique like Mean, Mode, Percentile and Percentage were used, and as a tools Fig and table were used in this research work. Data analysis was done by SPSS version 10.

#### Procedure of analysing data

The collected data were analysing using appropriate statistical procedure. Mean was calculated for measuring central tendency and standard deviation was calculated as the measure of variability.

Formulas used for calculation of different statistical parameters were:

The formula used for calculating mean-

$$\text{Mean (M)} = (\Sigma X/N)$$

Where, M denotes the mean, X denotes the sum total of scores and N denotes the number of scores.

The formula for calculating Standard Deviation –

$$SD (\sigma) = \sqrt{(X-M)^2/N}$$

Where  $\sigma$  denotes the standard deviation,  $(X-M)^2$  denote the total of square of the deviation and N denotes the number of scores.

**Table 3: Norms**

	Level
90 <sup>th</sup> and >90 <sup>th</sup> Percentile	Outstanding
80 <sup>th</sup> to < 90 <sup>th</sup> Percentile	Very Good
60 <sup>th</sup> to < 80 <sup>th</sup> Percentile	Good
50 <sup>th</sup> to < 60 <sup>th</sup> Percentile	Average
40 <sup>th</sup> to < 50 <sup>th</sup> Percentile	Satisfactory
<40 <sup>th</sup> Percentile	Poor

Above norms were used to interpret data for all types of batteries except batteries that unit is in time. Time related batteries were interpreted using following norm that is just reverse to the above. (Mijanur, 2018)

**Table 4**

	Level
<40 <sup>th</sup> Percentile	Poor
40 <sup>th</sup> to < 50 <sup>th</sup> Percentile	Satisfactory
50 <sup>th</sup> to < 60 <sup>th</sup> Percentile	Average
60 <sup>th</sup> to < 80 <sup>th</sup> Percentile	Good
80 <sup>th</sup> to < 90 <sup>th</sup> Percentile	Very Good
90 <sup>th</sup> and >90 <sup>th</sup> Percentile	Outstanding

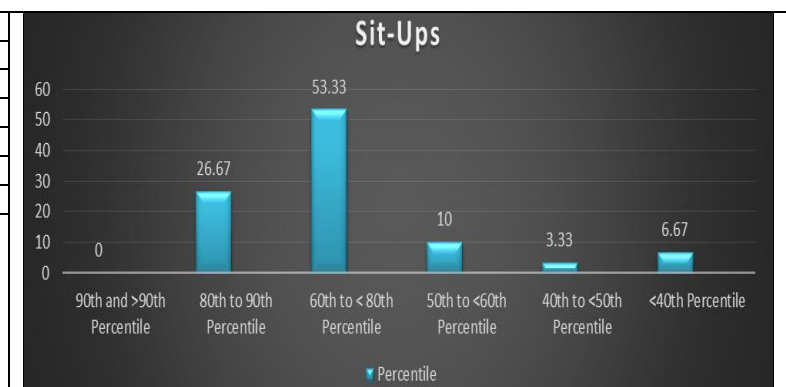
**Data analysis**

**The data**

Present study was planned to analyze of motor fitness components among women national cricket team of

**Abdominal Strength**

Level	Percent (%)
90 <sup>th</sup> and >90 <sup>th</sup> Percentile (Outstanding)	0
80 <sup>th</sup> to < 90 <sup>th</sup> Percentile (Very Good)	26.67
60 <sup>th</sup> to < 80 <sup>th</sup> Percentile (Good)	53.33
50 <sup>th</sup> to < 60 <sup>th</sup> Percentile (Average)	10
40 <sup>th</sup> to < 50 <sup>th</sup> Percentile (Satisfactory)	3.33
<40 <sup>th</sup> Percentile (Poor)	6.67



**Fig 5: Sit-ups**

Fitness Test Norms of Sit-up, above mention Fig shows that maximum Percent (53.33%) of the students performed Good (60<sup>th</sup> to <80<sup>th</sup> Percentile). 26.67% subjects did score Very Good (80<sup>th</sup> to <90<sup>th</sup> Percentile) and 10% of the students performed 30 to 32 correct sit-ups those lies between 50<sup>th</sup> to

Bangladesh. Motor fitness was measure by AAHPHERD test batteries (50 y dash, shuttle run, 9minutes run and sit-up) and pacer test (Beep test). The collected motor fitness variables were considered as data for the present study.

**Analysis of Data**

The analysis of Motor Fitness Components of women national cricket team of Bangladesh are given accordingly. Figical representation of each variable is also presented for mean and SD. Further discussion of finding is initiated for better understanding of result.

**The data regarding motor fitness parameters**

The selected motor fitness variables of this present study was AAHPHERD test batteries (50 y dash, shuttle run, sit-up & 9minutes run) and beep test. The results of Motor Fitness Components of Bangladesh National Women’s Cricketers are given bellow:

**Personal Data**

**Table 5: Mean and SD of Height, Weight and BMI of National team.**

Group		
Weight	Mean	51.3000
	SD	4.64721
Height	Mean	1.5703
	SD	.05810
BMI	Mean	20.81

Above mention table illustrated that the mean value of Height of National team were 1.5703 and SD were .05810 respectively. The mean value of Weight of National team were 51.300 and SD was 4.64721 respectively. The mean age of the subjects were 21Years and mode age was 22 Years. Their mean BMI were 20.81.

**TABLE 2. SIT-UP FOR GIRLS (FLEXED LEG)**  
**Percentile Scores Based on Age / Test Scores in Number of Sit-ups Performed in 60 Seconds**

Percentile	Age								Percentile
	9-10	11	12	13	14	15	16	17+	
100th	56	60	55	57	52	58	75	66	100th
95th	45	43	44	45	45	45	43	45	95th
90th	40	40	40	41	43	42	40	41	90th
85th	38	38	38	40	41	40	38	40	85th
80th	35	36	37	38	39	38	36	38	80th
75th	34	35	36	36	37	36	35	35	75th
70th	33	33	35	35	35	35	34	34	70th
65th	31	32	33	33	35	34	33	33	65th
60th	30	31	32	32	33	33	32	32	60th
55th	29	30	30	31	32	32	31	31	55th
50th	27	29	29	30	30	31	30	30	50th
45th	25	28	28	29	30	30	28	30	45th
40th	24	26	27	27	29	29	27	28	40th
35th	23	25	26	26	27	28	26	27	35th
30th	22	24	25	25	25	26	25	26	30th
25th	21	22	24	23	24	25	24	25	25th
20th	20	20	22	22	22	23	22	22	20th
15th	17	18	20	20	20	22	20	20	15th
10th	14	15	17	18	18	20	18	18	10th
5th	10	9	13	15	16	15	15	14	5th
0	0	0	0	0	2	2	0	1	0

Fig 6: Norms of Sit-ups (AAPHERD Youth Fitness Test)

Agility

Percent (%)	Level
0	<40 <sup>th</sup> Percentile (Poor)
6.67	40 <sup>th</sup> to < 50 <sup>th</sup> Percentile (Satisfactory)
13.33	50 <sup>th</sup> to <60 <sup>th</sup> Percentile (Average)
40	60 <sup>th</sup> to < 80 <sup>th</sup> Percentile (Good)
33.33	80 <sup>th</sup> to < 90 <sup>th</sup> Percentile (Very Good)
16.67	90 <sup>th</sup> and >90 <sup>th</sup> Percentile (Outstanding)

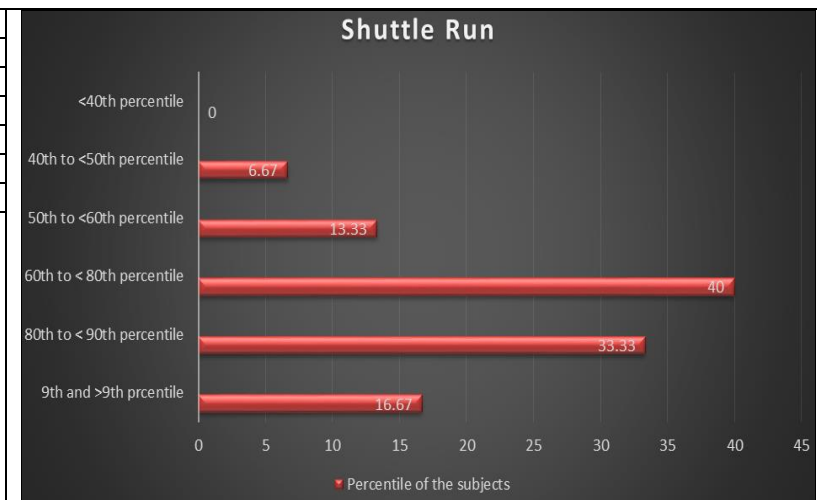


Fig 7: Shuttle Run

Comparing with AAPHERD Youth Fitness Test Norms of Shuttle run, above mention Fig shows that maximum Percent (40%) of the students performed Good (60<sup>th</sup> to <80<sup>th</sup> Percentile). 33.33% subjects did score Very Good (80<sup>th</sup> to <90<sup>th</sup> Percentile) and time 10.9 seconds to 11.1seconds made by 13.33% of the students was between 50<sup>th</sup> to 60<sup>th</sup>

percentile(average). Bellow 40<sup>th</sup> percentile was >11.50 seconds is the poorest level and this percentile was not acquired by any subjects. Whereas minimum 6.67% of the students were found in 40<sup>th</sup> to<50<sup>th</sup> percentile group and time take 11.1 to 11.5 seconds. 90<sup>th</sup> or above percentile was made by 16.67% of the subjects and time scored 10.0 second or less.

**TABLE 3. SHUTTLE RUN FOR GIRLS**  
Percentile Scores Based on Age / Test Scores in Seconds and Tenths

Percentile	Age								Percentile
	9-10	11	12	13	14	15	16	17+	
100th	8.0	8.4	8.5	7.0	7.8	7.4	7.8	8.2	100th
95th	10.2	10.0	9.9	9.9	9.7	9.9	10.0	9.6	95th
90th	10.5	10.3	10.2	10.0	10.0	10.0	10.2	10.0	90th
85th	10.9	10.5	10.5	10.2	10.1	10.2	10.4	10.1	85th
80th	11.0	10.7	10.6	10.4	10.2	10.3	10.5	10.3	80th
75th	11.1	10.8	10.8	10.5	10.3	10.4	10.6	10.4	75th
70th	11.2	11.0	10.9	10.6	10.5	10.5	10.8	10.5	70th
65th	11.4	11.0	11.0	10.8	10.6	10.6	10.9	10.7	65th
60th	11.5	11.1	11.1	11.0	10.7	10.9	11.0	10.9	60th
55th	11.6	11.3	11.2	11.0	10.9	11.0	11.1	11.0	55th
50th	11.8	11.5	11.4	11.2	11.0	11.0	11.2	11.1	50th
45th	11.9	11.6	11.5	11.3	11.2	11.1	11.4	11.3	45th
40th	12.0	11.7	11.5	11.5	11.4	11.3	11.5	11.5	40th
35th	12.0	11.9	11.7	11.6	11.5	11.4	11.7	11.6	35th
30th	12.3	12.0	11.8	11.9	11.7	11.6	11.9	11.9	30th
25th	12.5	12.1	12.0	12.0	12.0	11.8	12.0	12.0	25th
20th	12.8	12.3	12.1	12.2	12.1	12.0	12.1	12.2	20th
15th	13.0	12.6	12.5	12.6	12.3	12.2	12.5	12.5	15th
10th	13.8	13.0	13.0	12.8	12.8	12.6	12.8	13.0	10th
5th	14.3	14.0	13.3	13.2	13.1	13.3	13.7	14.0	5th
0	18.0	20.0	15.3	16.5	19.2	18.5	24.9	17.0	0

Fig 8: Norms of Shuttle Run (AAPHERD Youth Fitness Test)

**Speed**

Percent (%)	Level
13.33	<40 <sup>th</sup> Percentile (Poor)
6.67	40 <sup>th</sup> to <50 <sup>th</sup> Percentile (Satisfactory)
3.33	50 <sup>th</sup> to <60 <sup>th</sup> Percentile (Average)
43.33	60 <sup>th</sup> to <80 <sup>th</sup> Percentile (Good)
33.33	80 <sup>th</sup> to <90 <sup>th</sup> Percentile (Very Good)
0	90 <sup>th</sup> and >90 <sup>th</sup> Percentile (Outstanding)

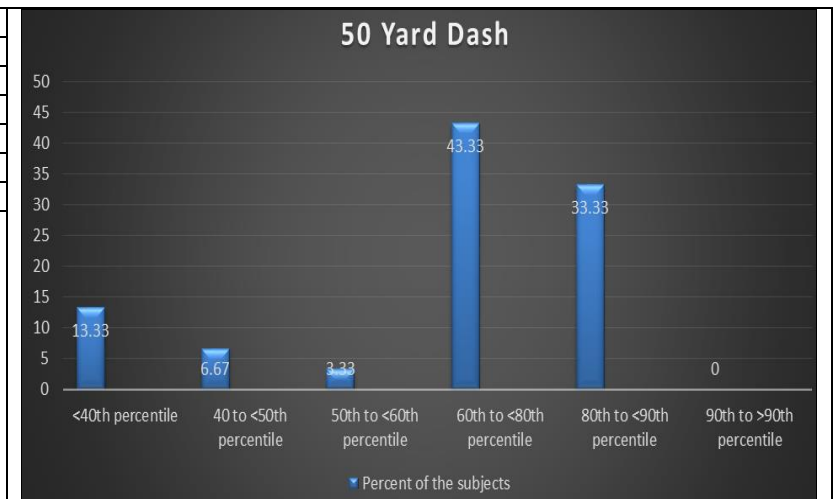


Fig 9: 50 Yard Dash

Comparing with AAPHERD Youth Fitness Test Norms of 50 yard dash, above mention Fig shows that maximum Percent (43.33%) of the students performed Good (60<sup>th</sup> to <80<sup>th</sup> Percentile). 33.33% subjects did score Very Good (80<sup>th</sup> to <90<sup>th</sup> Percentile) and time 7.6 seconds to 7.9 seconds made by 3.33% of the subjects was between 50<sup>th</sup> to 60<sup>th</sup>

percentile(average). Below 40<sup>th</sup> percentile was >8.0 seconds is the poorest level and this percentile was acquired by 13.33% subjects. Whereas 6.67% of the students were found in 40<sup>th</sup> to<50<sup>th</sup> percentile group and time take 7.9 to 8.0 seconds. 90<sup>th</sup> or above percentile was not made by any subjects.

**TABLE 5. 50-YARD DASH FOR GIRLS**  
Percentile Scores Based on Age / Test Scores in Seconds and Tenths

Percentile	Age								Percentile
	9-10	11	12	13	14	15	16	17+	
100th	7.0	6.9	6.0	6.0	6.0	6.0	5.6	6.4	100th
95th	7.4	7.3	7.0	6.9	6.8	6.9	7.0	6.8	95th
90th	7.5	7.5	7.2	7.0	7.0	7.0	7.1	7.0	90th
85th	7.8	7.5	7.4	7.2	7.1	7.1	7.3	7.1	85th
80th	8.0	7.8	7.5	7.3	7.2	7.2	7.4	7.3	80th
75th	8.0	7.9	7.6	7.4	7.3	7.4	7.5	7.4	75th
70th	8.1	7.9	7.7	7.5	7.4	7.5	7.5	7.5	70th
65th	8.3	8.0	7.9	7.6	7.5	7.5	7.6	7.5	65th
60th	8.4	8.1	8.0	7.7	7.6	7.6	7.7	7.6	60th
55th	8.5	8.2	8.0	7.9	7.6	7.7	7.8	7.7	55th
50th	8.6	8.3	8.1	8.0	7.8	7.8	7.9	7.9	50th
45th	8.8	8.4	8.2	8.0	7.9	7.9	8.0	8.0	45th
40th	8.9	8.5	8.3	8.1	8.0	8.0	8.0	8.0	40th
35th	9.0	8.6	8.4	8.2	8.0	8.0	8.1	8.1	35th
30th	9.0	8.8	8.5	8.3	8.2	8.1	8.2	8.2	30th
25th	9.1	9.0	8.7	8.5	8.3	8.2	8.3	8.4	25th
20th	9.4	9.1	8.9	8.7	8.5	8.4	8.5	8.5	20th
15th	9.6	9.3	9.1	8.9	8.8	8.6	8.5	8.8	15th
10th	9.9	9.6	9.4	9.2	9.0	8.8	8.8	9.0	10th
5th	10.3	10.0	10.0	10.0	9.6	9.2	9.3	9.5	5th
0	13.5	12.9	14.9	14.2	11.0	15.6	15.6	15.0	0

Fig 10: Norms of 50 Yard Dash (AAPHERD Youth Fitness Test)

**Cardiovascular Endurance**

Percent (%)	Level
26.67	<40 <sup>th</sup> Percentile (Poor)
36.67	40 <sup>th</sup> to <50 <sup>th</sup> Percentile (Satisfactory)
23.33	50 <sup>th</sup> to <60 <sup>th</sup> Percentile (Average)
13.33	60 <sup>th</sup> to <80 <sup>th</sup> Percentile (Good)
0	80 <sup>th</sup> to <90 <sup>th</sup> Percentile (Very Good)
0	90 <sup>th</sup> and >90 <sup>th</sup> Percentile (Outstanding)

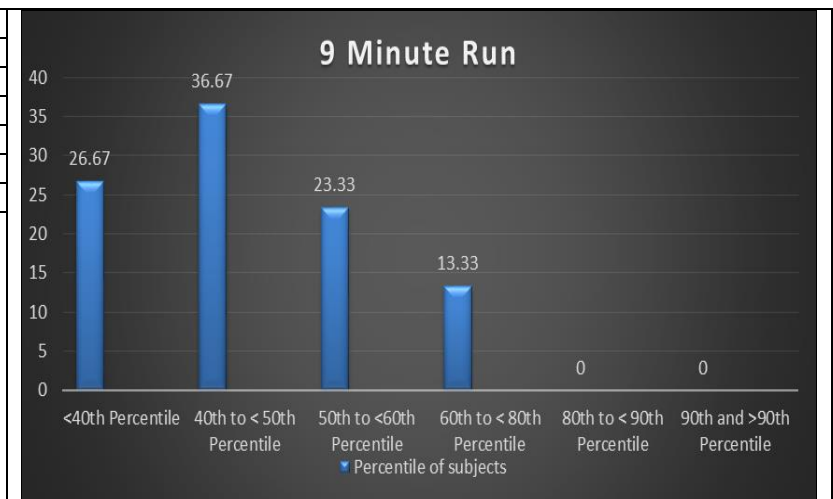


Fig 11: Nine Minutes Run

Comparing with below mention norms of 9 minutes run, above mention Fig shows that maximum 36.67% of the subjects performed Satisfactory (40<sup>th</sup> to <50<sup>th</sup> percentile). 13.33% of the subjects did score Good (60<sup>th</sup> to < 80<sup>th</sup> Percentile) and distance 1760 yards to 1868 yards covered by

23.33% of the subjects was between 50<sup>th</sup> to 60<sup>th</sup> percentile(average). Bellow 40<sup>th</sup> percentile was <1710 yards is the poorest level and this percentile was acquired by 26.67% subjects. Where no students were found in 80<sup>th</sup> to < 90<sup>th</sup> Percentile group and 90<sup>th</sup> and >90<sup>th</sup> Percentile group.

**Table 10. Percentile Norms for the Nine Minute Run Run (yards) for Age/Sex Groups**

Percentile	Men				Women			
	18	19	20	21	18	19	20	21+
99	3013	2820	2170	2720	2453	2255	3080	2750
95	2733	2640	2645	2640	2188	2200	2343	2524
90	2550	2530	2503	2541	2090	2090	2200	2307
85	2447	2420	2420	2457	1980	2009	2087	2203
80	2420	2365	2328	2420	1881	1927	1848	2142
75	2393	2288	2288	2391	1870	1870	1880	2068
70	2310	2255	2255	2334	1824	1824	1818	1980
65	2257	2220	2200	2307	1811	1804	1761	1906
60	2234	2200	2200	2274	1760	1760	1760	1868
55	2200	2200	2200	2255	1760	1760	1760	1775
50	2145	2185	2145	2255	1760	1750	1720	1760
45	2090	2093	2134	2212	1680	1701	1637	1760
40	2035	2028	2090	2200	1591	1650	1593	1710
35	1980	1980	2030	2200	1540	1598	1551	1650
30	1980	1962	1980	2144	1478	1584	1540	1579
25	1875	1925	1919	1994	1436	1540	1400	1491
20	1870	1870	1850	1980	1373	1466	1320	1408
15	1760	1801	1760	1967	1320	1398	1261	1320
10	1780	1760	1760	1920	1320	1320	1210	1282
5	1540	1352	1734	1777	1180	990	925	838

Fig 12: Norms of 9 Minutes Run.

**Beep Test**

Percent (%)	Level
0	<40 <sup>th</sup> Percentile (Poor)
13.33	40 <sup>th</sup> to <50 <sup>th</sup> Percentile (Satisfactory)
13.33	50 <sup>th</sup> to <60 <sup>th</sup> Percentile (Average)
43.33	60 <sup>th</sup> to <80 <sup>th</sup> Percentile (Good)
23.33	80 <sup>th</sup> to <90 <sup>th</sup> Percentile (Very Good)
6.67	90 <sup>th</sup> and >90 <sup>th</sup> Percentile (Outstanding)

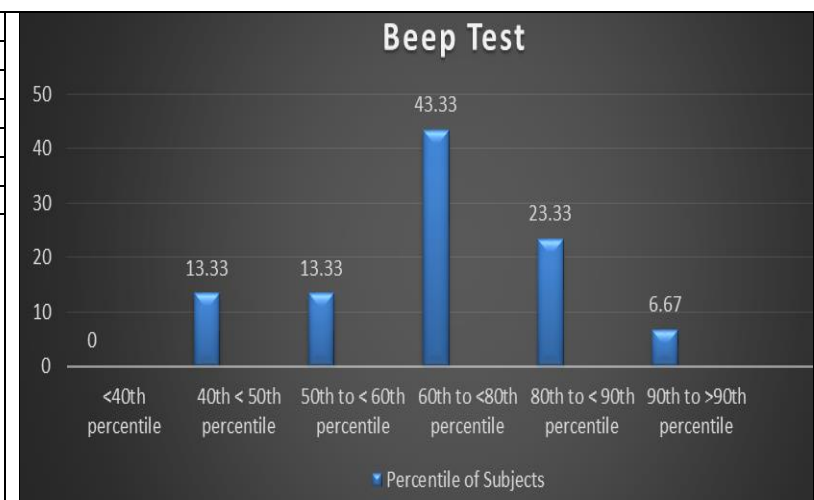


Fig 13: Beep test

Comparing with Pacer Test Norms, above mention Fig shows that 13.33% of the subjects performed Satisfactory (40<sup>th</sup> to <50<sup>th</sup> percentile). Maximum 43.33% of the subjects did score Good (60<sup>th</sup> to <80<sup>th</sup> Percentile) and 13.33% of the subjects was between 50<sup>th</sup> to 60<sup>th</sup> percentile (average). Bellow 40<sup>th</sup>

percentile was not acquired by any subjects whereas minimum 6.67% of the subjects were found in between 90<sup>th</sup> to >90<sup>th</sup> percentile. In between 80<sup>th</sup> to <90<sup>th</sup> percentile 23.33% of the students were found.

PACER TEST						
FEMALES	poor	fair	average	good	very good	excellent
12 - 13 yrs	13	21	34	43	56	75
14 - 15 yrs	19	35	46	57	69	90
16 - 17 yrs	25	39	53	66	80	105
18 - 25 yrs	28	40	54	68	85	113
26 - 35 yrs	23	35	47	59	77	99
36 - 45 yrs	14	23	36	44	56	77
46 - 55 yrs	12	21	28	36	44	62
56 - 65 yrs	9	14	21	28	39	53
> 65 yrs	5	9	14	20	27	39

Fig 14: Norms of Beep Test



Fig 15: Total overall Fitness level in % (percentage) of Bangladesh National Women Cricket Players in 2018.

Overall, physical fitness Fig revealed that players mainly did better in speed dominated batteries in compared to the batteries where strength is dominant. Highest 38.66% of the player’s physical fitness were good, 23.33% of them were very good, outstanding level of physical fitness was found on

4.66% of the subjects, 12.66% was average with average physical fitness level, satisfactory overall fitness level acquired by 13.33% samples and overall poor physical fitness level was observed on 9.33% of the Bangladesh National Women Cricket Players in 2018.

**Analysis of mean values of different variables**

Table 6

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Fifty Yard Dash(sec)	30	7.13	8.31	7.5197	±.35654
Shuttle run(4*10m)	30	9.50	10.56	10.0303	±.27843
Nine minutes run(km)	30	1.55	1.82	1.7213	±.07328
Sit-ups (per min)	30	26.00	41.00	34.6000	±3.96189

Mean and SD of the subjects in different motor fitness test

Comparing these values with the 50<sup>th</sup> percentile norms (Hunsicker & Reiff) of above mention different variables norms, it was found that the mean values of Bangladesh National women Cricket Players were higher in the all parameters.

**Findings**

The present study was planned to analyze of the Physical fitness of Bangladesh National Women Cricket Players. Above mention table-5 illustrated that the mean value of Height of National team were 1.5703 and SD were .05810 respectively. The mean value of Weight of National team were 51.300 and SD was 4.64721 respectively. The mean age of the subjects were 21 and mode age was 22. Their mean BMI were 20.81.

Above mention Fig-5 shows that maximum Percent (53.33%) of the students performed Good (60<sup>th</sup> to <80<sup>th</sup> Percentile) in sit-ups. 26.67% subjects did score Very Good (80<sup>th</sup> to <90<sup>th</sup> Percentile) and 10% of the students performed 30 to 32 correct sit-ups those lies between 50<sup>th</sup> to <60<sup>th</sup> percentile (Average). Only 3.33% of the students performed 28 to 30 correct sit-ups those lies between 40<sup>th</sup> to <50<sup>th</sup> percentile. 6.67% of the students performed less than 40<sup>th</sup> percentile (Poor).

In shuttle run Fig-7 illustrates that 33.33% subjects did score Very Good (80<sup>th</sup> to <90<sup>th</sup> Percentile). Maximum Percent (40%) of the students performed Good (60<sup>th</sup> to <80<sup>th</sup> Percentile) and time 10.9 seconds to 11.1seconds made by 13.33% of the students was between 50<sup>th</sup> to 60<sup>th</sup> percentile (average). Bellow 40<sup>th</sup> percentile was >11.50 seconds is the

poorest level and this percentile wasn’t acquired by any subjects. Whereas minimum 6.67% of the students were found in 40<sup>th</sup> to <50<sup>th</sup> percentile group and time take 11.1 to 11.5 seconds. 90<sup>th</sup> or above percentile was made by 16.67% of the subjects and time scored 10.0 second or less.

Fig-9 interprets that maximum Percent (43.33%) of the students performed Good (60<sup>th</sup> to <80<sup>th</sup> Percentile) in 50 yard dash. 33.33% subjects did score Very Good (80<sup>th</sup> to <90<sup>th</sup> Percentile) and time 7.6 seconds to 7.9 seconds made by 3.33% of the subjects was between 50<sup>th</sup> to 60<sup>th</sup> percentile (average). Bellow 40<sup>th</sup> percentile was >8.0 seconds is the poorest level and this percentile was acquired by 13.33% subjects. Whereas 6.67% of the students were found in 40<sup>th</sup> to <50<sup>th</sup> percentile group and time take 7.9 to 8.0 seconds. 90<sup>th</sup> or above percentile wasn’t made by any subjects.

In nine minutes run test, Fig-11 indicates that maximum 36.67% of the subjects performed Satisfactory (40<sup>th</sup> to <50<sup>th</sup> percentile). 13.33% of the subjects did score Good (60<sup>th</sup> to <80<sup>th</sup> Percentile) and distance 1760 yards to 1868 yards covered by 23.33% of the subjects was between 50<sup>th</sup> to 60<sup>th</sup> percentile (average). Bellow 40<sup>th</sup> percentile was <1710 yards is the poorest level and this percentile was acquired by 26.67% subjects. Where no students were found in 80<sup>th</sup> to <90<sup>th</sup> Percentile group and 90<sup>th</sup> and >90<sup>th</sup> Percentile group.

Fig-13 of beep test states that 13.33% of the subjects performed Satisfactory (40<sup>th</sup> to <50<sup>th</sup> percentile). Maximum 43.33% of the subjects did score Good (60<sup>th</sup> to <80<sup>th</sup> Percentile) and 13.33% of the subjects was between 50<sup>th</sup> to 60<sup>th</sup> percentile (average). Bellow 40<sup>th</sup> percentile wasn’t

acquired by any subjects whereas minimum 6.67% of the subjects were found in between 90<sup>th</sup> to >90<sup>th</sup> percentile. In between 80<sup>th</sup> to <90<sup>th</sup> percentile 23.33% of the students were found.

Overall physical fitness Fig revealed that players mainly did better in speed dominated batteries in compared to the batteries where strength is dominant. Highest 38.66% of the player's physical fitness were good, 23.33% of them were very good, outstanding level of physical fitness was found on 4.66% of the subjects, 12.66% was average with average physical fitness level, satisfactory overall fitness level acquired by 13.33% samples and overall poor physical fitness level was observed on 9.33% of the Bangladesh National Women Cricket Players in 2018. Comparing these values with the 50<sup>th</sup> percentile norms of above mention different variables norms, it was found that the mean values of Bangladesh National women Cricket Players were higher in the all parameters.

### Summary and Conclusion

This section, the summary of all the previous chapter, background of the study, methodology used and analysis of data including result obtained have been presented. In addition to that the calculations of the study have been also included in this chapter.

### The Summary

The purpose of this study was to analyze of the Physical fitness of Bangladesh National Women Cricket Players. Here, motor fitness was measure by AAHPHERD test batteries (50 yard dash, shuttle run, 9 minutes run and sit-up) and beep test. The motor fitness was assist by 50-yard dash for speed, 4x10y shuttle run for agility, sit-up for abdominal strength and 9minutes run & beep test for cardiovascular endurance. The test presented could be used in the average physical education program. The tests selected and the results obtained when they were administered clearly indicated that economy of equipment and time were primary factors in selecting the test items. The tests batteries were an Indoor tests. The descriptive statistics had revealed that the mean values of the group were more than the 50<sup>th</sup> percentile norms of different test batteries. It was understood that Bangladesh National Women Cricket players were better in locomotion, speed, agility, cardiovascular endurance and muscular strength endurance than the referred group. Highest 38.66% of the player's physical fitness were good, 23.33% of them were very good, outstanding level of physical fitness was found on 4.66% of the subjects, 12.66% was average with average physical fitness level, satisfactory overall fitness level acquired by 13.33% samples and overall poor physical fitness level was observed on 9.33% of the Bangladesh National Women Cricket Players in 2018. Comparing these values with the 50<sup>th</sup> percentile norms of above mention different variables norms, it was found that the mean values of Bangladesh National women Cricket Players were higher in the all parameters.

Total thirty (30) National level women cricket players from National Camp were randomly selected to serve as the subjects for this present study. Most of them were active players of Bangladesh women National league. The age of the selected players ranged between 17 to 25 years. They have 4-

13 years of training age at the time of collection data of them used to practices under the supervision of qualified coaches. Standardized procedures were used for collecting data for motor fitness of the subject. Statistical procedure of mean and standard deviation used for analysis the data. This study would allow the individual's performance to be evaluated.

### Conclusion

To conclude, the result of the study reveal that, the Bangladesh National Women Cricket Players in 2018 demonstrate a good overall physical fitness level. Subjects take upper hand in speed dominant batteries in compare to the strength dominant batteries. It is understood that Bangladesh National Women Cricket players are better in locomotion, speed, agility, cardiovascular endurance, and muscular strength endurance than the referred group. Only 9.33% of the subjects are suffering with the overall poor physical fitness level. Nearly one fifth of the subjects need to pay attention on their overall physical fitness to reach at Good level.

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