



## CONSTRUCTION OF SPECIFIC PHYSICAL FITNESS TEST FOR NATIONAL LEVEL BADMINTON PLAYERS

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### ABSTRACT:-

**T**he purpose of the study is to construct specific physical fitness test for national level badminton players. The Study was delimited to 100 randomly selected national level badminton players from different university of west zone. Following items constitute specific physical fitness test battery



for national level badminton players are Pull ups for Arm Strength, Bent knee Sit-ups for Abdominal Strength, Cooper 12 min Run Walk Test for Endurance, Standing Broad Jump Test for Leg Strength, 30 meter Dash for Speed, Dodging Run Test for Agility, Modified Sit and Reach Test for Flexibility, Nelson Hand Reaction

Time Test for Reaction Time, Lateral Jump Test for Balance and Coordination.

**KEYWORDS:** Specific Physical Fitness, Badminton, Strength, Speed, Endurance, Flexibility, Agility, Reaction Time, Balance and Coordination.

### INTRODUCTION :

The general fitness is the pre-requisite for all the sports, which include Strength, Speed, Endurance, Agility, Reaction Time, Flexibility, Balance and Coordination whereas specific fitness varies from sport to sport. In certain sports the strength component of fitness is a dominating factor whereas in other sports endurance, speed and agility may be required for achieving better results. Anyone can learn to play Badminton. The outstanding advantage badminton has over all other racket games is the early satisfaction it gives to the complete beginner. Very little skill is required to hit the shuttlecock over the net and play a rally with a friend. The very nature of the equipment makes this an easy task for the complete beginner. The racket is so light that only a limited amount of strength is required to control it. These factors enable any normal healthy child or adult to gain enjoyment at a very early stage in learning the game. One does not have to be an expert to enjoy badminton as a game. The physical fitness may be classified as general physical fitness and specific physical fitness. The Study was delimited to one hundred 100 randomly selected national level badminton players from different university of west zone, who was participate in inter university badminton tournament session 2016-17. The study was also being delimited to the construction and development of specific physical fitness test for national level badminton players. The study was also being delimited to the only male national level badminton player's. Variations in performance due to climatic conditions, ground conditions, player's physical factors and psychological factors that might affect the study was considered as the limitation of this study. The purpose of the study is to construct specific physical fitness test for national level badminton players.

## PROCEDURE

One hundred male national level badminton players were randomly selected for this study from different university of west zone and Inter zone. The age group of the subject ranged between 18 to 28 years. The data on selected test items was collected from national level badminton players at from different university of west zone and Inter zone. Before the testing programmed was organized, the research scholar assembled the entire badminton player together to brief them on the nature, the modalities and the objectives of the present investigation and demonstrating the various test so they could have a clear mental picture of the various test they were going to take part.

## SPECIFIC PHYSICAL FITNESS TEST ITEMS

The various Specific physical fitness tests items was selected i.e. Strength, Speed, Endurance, Flexibility, Agility, Reaction Time, Balance and coordination, for this study.

**TABLE - 01**  
**LIST OF SELECTED TEST ITEM**

S. NO.	FITNESS COMPONENT	TEST
1	<b>Strength</b>	1. Vertical Jump (Leg Strength) 2. Standing Broad Jump (Leg Strength) 3. Bent Knee Sit-ups (Abdominal Strength) 4. Four Levels Abdominal Strength Test (AST) 5. Push-ups (Shoulder Strength) 6. Pull-ups (Arm Strength)
2	<b>Speed</b>	1. 30 Meter Run 2. 50 Meter Run
3	<b>Endurance</b>	1. Cooper 12 Min. Run / Walk Test 2. 600 Yard Run
4	<b>Flexibility</b>	1. Modified Sit and Reach Test 2. Bridge up Test
5	<b>Agility</b>	1. Dodging Run Test 2. Boomerang Test
6	<b>Reaction Time</b>	1. Nelson Hand Reaction Time Test 2. Six Second Dash
7	<b>Balance and Coordination</b>	1. Lateral Jump 2. Bass Stick Test

The help of qualified coaches and experts of physical education took taken by the research scholar for administering the test on the subjects. The research scholar takes special care to explain the test and the testing procedures to the helpers and to the subjects. The subject was directed to come in proper playing kit during the performance of the test. Research scholar motivated the subjects to perform each test items enthusiastically with the spirit of competition and to know their standard of physical fitness. Factor analysis technique was used a tool to select test items out of 09 test items best suited to measure specific physical fitness of male national level badminton players at from different university of west zone which was serve as a comprehensive specific physical fitness test. The Correlation Matrix of the inter-correlation between the 09 test items was obtained by applying Person's Product Movement method. The factor analysis technique was applied by using the principal component analysis (unrotated factor loading and varimax rotation). Final Solution so obtain was used to identify different factors. These factors were given an appropriate name depending upon the characteristics of the variables contained in it. Finally, a test battery was prepared by picking up variables having the highest loading from each other.

**TABLE - 02**  
**DESCRIPTIVE ANALYSIS OF 9 FITNESS TEST ITEMS**

S.NO.	TEST VARIABLES	UNIT	MEAN	S <sub>DM</sub>
1	VERTICAL JUMP	METERS	47.69	3.548
2	STANDING BROAD JUMP	METERS	2.36	0.20
3	BENT KNEE SIT-UPS	NUMBERS	40.20	5.819
4	FOUR LEVELS ABDOMINAL STRENGTH TEST	NUMBERS	30	2.8
5	PUSH-UPS	NUMBERS	53.81	5.362
6	PULL- UPS	NUMBERS	16.19	3.86
7	30 METER RUN	SECONDS	5.39	0.42
8	50 METER RUN	SECONDS	7.93	0.65
9	12MIN RUN/WALK TEST	METERS	2740.00	167.593
10	600 YARD RUN TEST	SECONDS	111.89	11.49
11	MODIFIED SIT AND REACH TEST	CENTI-METER	58.62	11.65
12	BRIDGE UP TEST	CENTI-METER	16.39	3.48
13	DODGING RUN TEST	SECONDS	15.10	1.14
14	BOOMERANG TEST	SECONDS	11.82	1.16
15	NELSON HAND REACTION TIME TEST	SECONDS	0.32	0.06
16	SIX SECOND DASH	METERS	31.39	3.38
17	LATERAL JUMP	NUMBERS	23.93	2.8
18	BASS STICK TEST	NUMBERS	93.69	3.59

**TABLE - 03**  
**ROTATED FACTOR LOADING (Varimax Solution)**

S.NO.	TEST VARIABLES	FACTORS								
		I	II	III	IV	V	VI	VII	VIII	IX
1	Pull-ups	.81	.26	.22	.13	.18	-.04	-.11	.23	.09
2	Push-ups	.34	.69	-.66	.23	.09	.38	.07	.05	.06
3	12minRun/Walk	.10	.06	.81	-.05	-.06	.12	.69	.33	.13
4	600 yard run	.06	.16	.64	.73	-.02	.20	-.06	-.01	.10
5	Bent knee Sit-ups	.04	.74	.12	.60	.11	.01	.17	-.14	.09
6	Standing Broad Jump	-.14	.59	-.05	.84	-.01	-.13	.06	-.09	.06
7	Vertical Jump	.20	.01	.69	-.17	.09	.06	.19	.46	.18
8	30 mts Run	.22	.42	.01	-.07	.87	.70	-.02	.17	.12
9	50 mts Run	.02	.64	-.02	-.09	-.18	.70	.04	.03	-.04
10	Four Level Abdominal Test	.66	-.05	.04	-.17	.12	.01	.64	.01	.31
11	Bridge up Test	.30	.05	.06	.09	.74	.08	.06	.81	.12
12	Sit and Reach	.25	-.08	-.06	.66	.23	.67	.87	-.16	.20
13	Boomerang Test	-.01	.01	.30	.17	.67	.06	.77	-.13	.30
14	Dodging Run	.24	.16	.04	.17	.09	.89	-.08	.17	.60
15	Nelson Hand Reaction	.20	.04	.09	.09	.20	.61	.14	.71	-.14
16	Six Second Dash	.06	.02	.14	.10	.19	-.05	-.10	.19	.74
17	Bass Stick Test	.14	.12	-.17	.11	-.06	.41	.29	.67	.67
18	Lateral Jump	.16	.07	.23	.32	.83	.28	-.06	.21	.84

**TABLE - 04**  
**FINAL TEST BATTERY OF SPECIFIC PHYSICAL FITNESS FOR NATIONAL LEVEL BADMINTON**  
**PLATER OF WEST ZONE**

S.NO.	FACTOR MEASURED	TEST ITEM	FACTOR LOADING
1	Strength (Arm)	Pull-ups	<b>0.81</b>
2	Strength (Leg)	Standing Broad Jump	<b>0.84</b>
3	Strength (Abdominal)	Bent Knee Sit-ups	<b>0.74</b>
4	Speed	30 Meter Dash	<b>0.87</b>
5	Endurance	Cooper 12 Min. Run/Walk Test	<b>0.81</b>
6	Flexibility	Modified Sit and Reach Test	<b>0.87</b>
7	Agility	Dodging Run	<b>0.89</b>
8	Reaction Time	Nelson Hand Reaction Time Test	<b>0.71</b>
9	Balance & Coordination	Lateral Jump	<b>0.84</b>

### CONCLUSION

The factor analysis technique yielded ten specific physical fitness items as the factors. A test battery of 09 items developed by the scholar who has the ability to predict the specific physical fitness of male national level badminton players at from different university of west zone. Nine test items namely Pull ups (Arm-Strength), Standing Broad Jump (Explosive Strength of Legs), Bent knee Sit ups (Abdominal Strength), 30 mts Run (Speed), Cooper 12 min Run Walk Test (Endurance), Modified Sit and Reach Test (Flexibility), Dodging Run Test (Agility), Nelson Hand Reaction Time Test (Reaction Time Ability), Lateral Jump (Balance & Coordination) indicated a highly significant relationship with the performance of badminton player.

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