Construction of a Specific Test Battery of Motor Fitness for Medium Pace Bowlers in Cricket

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Abstract – The study was conducted on selected motor fitness components on 30 male Inter-University level cricketers with the purpose to construct a specific test battery of motor fitness for medium pace bowlers. The selected motor fitness components were Speed, Strength, Agility Endurance and Flexibility. Construction of a specific test battery of motor fitness for medium pace bowlers in cricket asses the relationship of criterion with each of test item further wherry do little method of multiple correlation was computed to find out the combined contribution of all the test items. The multiple regression equations were worked out to assess the relative contribution of different selected test item to specific motor fitness of medium pace bowlers. On the basis of results, the following conclusion were drawn: The multiple correlation fielded eight specific motor fitness tests, namely, Push-ups (5), Vertical jump (8), Leg raising just one feet above the ground (11), W.M. Agility (14), Six point run (16), Dips on parallel Bar (18), Trunk flexion (22), identified to be meaningful in representing the specific motor fitness of medium pace bowlers. All the eight tests showed high significant relationship with the bowling playing ability. The battery of tests developed by the researcher has the ability to predict the specific motor fitness of medium pace bowler.

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OBJECTIVE OF THE STUDY

The objective of the study was to construct a specific test battery of motor fitness for medium pace bowlers.

METHODOLOGY

Subjects:

Subjects for the study were selected from cricket team of Lakshmibai National Institute of Physical Education, Gwalior who were the members of university cricket team. Thirty male medium pace bowlers in the age group of 17 to 28 years were selected.

Variable/Contents Selected

Following motor fitness components related to medium pace bowlers were selected.

a.   Speed

b.   Strength

c.   Agility

d.   Endurance

e.   Flexibility

Selection of motor fitness tests

Following specific motor fitness test were selected:

(i) Speed	1. 20 M
	2. 30 M
	3. 50 M
(ii) Strength	
(a) Strength (shoulder)	4. one hand cricket ball throw
	5. Push ups
	6. Pull ups
(b) Explosive Strength (Leg)	7. Standing Broad Jump
	8. Vertical Jump
	9. Tuck Jump
(c) Abdomen Strength	10.it ups
	11. eg raising just one feet above the ground.
	12. aising of legs and upper body
(d) Agility	13. Semo Agility
	14. W.M. Agility
	15. Shuttle run
(iii) Endurance	16. Six point run
	17. Eight point run
	18. 12min.run/walk
Strength Endurance	19. Dips on Parallel Bar
	20. Hand stand dips on low beam
(iv) Flexibility	21 Wrist flexion
	22 Trunk flexion
	23 Sit and reach

STATISTICAL ANALYSIS

Construction of a specific test battery of motor fitness for medium pace bowlers in cricket asses the relationship of criterion with each of test item further wherry do little method of multiple correlation was computed to find out the combined contribution of all the test items. The multiple

regression equations were worked out to assess the relative contribution of different selected test item to specific motor fitness of medium pace bowlers.

FINDINGS

Relationship of motor fitness components to the criterion

S. No.	Variable Correlated	Correlation Coefficient
1.	20 m. run	-.820*
2.	30 m. run	-.335
3.	50 m. run	-.669*
4.	One hand cricket ball throw	-.224
5.	Push ups	-.378*
6	Pull ups	-.141
7.	Standing broad jump	.071
8 .	Vertical jump	-.486*
9 .	Tuck jump	.003
10.	Sit ups	.305
11.	Leg raising fast one feet above ground	-.379*
12.	Raising of leg and upper body	-.128
13.	Semo agility	-.185
14.	W.M. agility	-.398*
15.	Shuttle run	-.100
16.	Six point run	.500
17.	Eight point run	.305
18.	12 min. run/walk	-.048
19.	Dips on parallel bar	0.359*
20	Hand stand dips on low beam	.287
21	Wrist flexion	263
22	Trunk flexion	419*
23	Sit & reach	.290

Table 1 clearly indicates that significant relationship between some independent variables and the criterion was found.

Combination Contribution of Specific Motor Fitness Test Items

Criterion	Independent Variable	Multiple Correlation	Co-efficient of Multiple Correlation
Playing Ability	20 m. run (1)		
	Push-ups (5)		
	Vertical jump (8)		
	Leg raising just one feet above the ground (11)	Re- 1, 5, 8, 11, 14, 16, 18, 22	.915*
	W.M. Agility (14)		
	Six point run (16)		
	Dips on parallel Bar (18)		
	Trunk flexion (22)		

Table 2 clearly discloses that the construction of specific test battery on motor fitness for medium pace bowlers in cricket as the computed value of .915 (Re- 1, 5, 8, 11, 14, 16, 18, 22) for multiple correlation was (.46) required for the multiple correlation coefficient to be significant at .05 level.

Multiple Regression Analysis:

The multiple regression equation for assessing the specific motor fitness of medium pace bowlers on the basis of relative contribution of eight test items resulted in the following:

$$Zc = 19.19\, z_0 - 3.031\, z_1 - .013\, z_2 - .016\, z_3 - -.014\, z_4 + .100\, z_5 + .030\, z_6 + .019\, z_7 + .005\, z_8.$$

Zc = Proposed specific motor fitness test scores.

Z_0 = Constant value

Z_1 = 20 m. run

Z_2 = Push ups

Z_3 = Vertical jump

Z_4 = Leg raising fast and feet above the ground

Z_5 = W.M. agility

Z_6 = Six point run

Z_7 = Dips on parallel bar

Z_8 = Trunk flexion

The above maintained regression equation shows that the specific motor fitness of medium pace bowler depend upon the speed, shoulder strength, leg strength, abdomen strength, agility, endurance, strength endurance, flexion in a diminishing order.

DISCUSSION OF FINDINGS

The coefficient correlation was used to find out while of the variable were most significant with the performance table revealed that that 20 m. run (.820*), push-ups (.378*), vertical jump (4.86*), leg raising just one feet above the ground, W.M. agility (.398), six point run (.500*), dips on parallel bar (.359*) and trunk flexion (.419*) were found to be more reliable in comparison to the correlation coefficient of other alternate variables of the same might be attributed to the fact that cricket is a game which requires strength ,flexibility, agility and endurance to be efficient in this game, this is the reason why the set variables were found to be more appropriate in relation to the playing ability to medium pace bowlers.

The researcher further found out the coefficient regression of the set variables which set variables which reveal that 20 m. run (3.031), push-ups (.031), vertical jump (-.016), leg raising just one feet above the ground (-.014), W.M. agility (.100) six point run (.030), Dips on parallel bar (.019), and trunk flexion (.005) were significant as the multiple regression was .915*.

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MULTIPLE REGRESSION ANALYSIS:

On the basis of the result of multiple regression analysis, it is possible to construct a specific motor fitness test for medium pace bowler.

It is generally seen that medium pace bowlers have typical characteristics but these characteristics varies from bowler to bowler. A medium pace bowler to bowler. A medium pace bowler who is low in some characteristics must compensate by high proficiency by others. The ideal combination involves more emphasis on speed, followed by strength, agility, endurance and flexibility in a diminishing order.

CONCLUSIONS

Within the limitation of the study and the procedure followed, the following conclusions were drawn:

1. The multiple correlation fielded eight specific motor fitness tests, namely, Push-ups (5), Vertical jump (8), Leg raising just one feet above the ground (11), W.M. Agility (14), Six point run (16), Dips on parallel Bar (18), Trunk flexion (22), identified to be meaningful in representing the specific motor fitness of medium pace bowlers.

2. All the eight tests showed high significant relationship with the bowling playing ability.

3. The battery of tests developed by the researcher has the ability to predict the specific motor fitness of medium pace bowler.

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