

An Analysis: Core Stability and Cricketing Fitness

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Abstract: *The present study was investigated to prepare a model Fitness test and to know the relationship of core stability with total fitness level of male professional cricketers. Randomly 40 (Forty) male professional cricketers aged 22 - 28 years were selected. Test and measurements were administered for 50 yards Dash for speed, Cooper test for endurance, Run-3 test for agility, 1 min Push-Up test for shoulder strength, Vertical jump for explosive leg strength, Sit and Reach test for Hip flexibility and Plank hold test for core stability. Statistical analysis was done only after extracting outlier data. The remaining data was calculated in 10th percentile and established a 10 point rating scale. Data were then normalized using Z-score technique. The total fitness score was derived from 10th point percentile scale to ascertain each variable separately and calculated out of 70 marks to justify the model test. Statistical technique Pearson Product Moment correlation test was applied to establish the relationship between core stability and total fitness score of professional cricketers, at 0.01 level. The result reveals a significant relationship ($r=.674$) between core stability and total fitness scores of the professional male cricketers.*

Keywords: *Fitness, Core stability, Professional Cricketers, Run-3, Plank hold test.*

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I. Introduction

The importance of fitness in any sport cannot be underlined. The fitter you are the better you'll play. Since Cricket is a team sport, all of the players are required to be in action. From a T20 game that is played for 3 hours to an International Test Match that stretches to 5 days, the game requires a high level of fitness for a professional player to perform effectively.(13) The success in the 1990s and 2000s of the world beating Australian team has been attributed to their professionalism, and in part to the way they addressed their fitness. The other test playing nations have rightfully put more emphasis on fitness recently and are reaping the benefits.(12) With the introduction of one day Cricket and more recently Twenty20, the game has gone through major changes and the physical demands made on a cricketer's body have also increased dramatically. ICC High Performance Manager Richard Done has stressed Associate countries must make fitness a top priority if they want to be competitive. Done was echoing the comments of Scotland coach Andy Moles, currently working as head coach at the ICC's Winter Training Camp (WTC) in Pretoria, who said that players have to become fit to play cricket rather than getting fit by playing cricket.(14)

Core stability is the foundation for explosive movements and control (agility, balance and coordination), qualities vital in cricket. It is the ability of your trunk to support the effort and forces from your arms and legs. This is so that your muscles and joints can perform in their safest, strongest and most effective positions. Core stability allows you to hit harder and bowl faster by enhancing your ability to control arm and leg movement. Core stability is the buzz word in cricket fitness. Why? Because the 'core' is the origin of movement and the foundation for safe and dynamic cricket. It provides central body control, and allows you to generate power by maximising the efficiency of your muscular effort. **Benefits of developing 'core stability'** In Cricket terms, you become more stable while batting, have better control while bowling, and become solid in your ability to catch and throw the ball. By training specifically for core stability, you gain a number of benefits(15) The research aims to identify the effect of core stability training on cricketing fitness.

II. Methodology

Sampling: Randomly 40 (Forty) male professional cricketers aged 22 - 28 years were selected.

Procedure: Test and measurements were administered for 50 yards Dash for speed, Cooper test for endurance, Run-3 test for agility, 1 min Push-Up test for shoulder strength, Vertical jump for explosive leg strength, Sit and Reach test for Hip flexibility and Plank hold test for core stability.

Statistical technique: Statistical analysis was done only after extracting outlier data. The remaining data was calculated in 10th percentile and established a 10 point rating scale. Data were then normalized using Z-score technique. The total fitness score was derived from 10th point percentile scale to ascertain each variable separately and calculated out of 70 marks to justify the model test. Statistical technique Pearson Product Moment correlation test was applied to establish the relationship between core stability and total fitness score of professional cricketers, at 0.01 level.

Table 1 Percentile score according to test result and established a 10 point rating scale

		core_St	Endurance	Flexibility	push_up	Run_3	Speed	Vertical_jump
N	Valid	36	36	36	36	36	36	36
	Missing	0	0	0	0	0	0	0
Percentiles	9	.1933	2151.5000	1.3300	18.6600	9.7098	5.2497	39.6600
	18	.2330	2264.7000	3.6600	22.6600	9.8664	5.4400	43.0000
	27	.2699	2389.4000	5.9950	25.9900	9.9699	5.4997	46.9900
	36	.3032	2423.2000	7.5000	27.6400	10.0696	5.6328	48.3200
	45	.3365	2480.0000	9.4750	31.0000	10.1395	5.7290	50.0000
	54	.3898	2509.9000	11.0000	34.9400	10.1898	5.8694	51.9800
	63	.4262	2555.0000	13.0000	38.3100	10.2686	5.9100	54.3100
	72	.4464	2593.8000	13.0000	40.6400	10.4268	5.9784	55.0000
	81	.9974	2659.2500	14.0000	43.0000	10.5897	6.1491	56.9700
90	1.1970	2770.5000	18.0000	48.1000	10.7260	6.3070	59.0000	

Table 2: Fitness score of different players

CHEST NO	V JUMP	SPEED	AGILITY	PUSH UP	FLEXIBILITY	CORE	ENDURANCE	TFS
36	3	3	1	9	3	3	3	35
72	9	8	5	9	7	3	9	50
77	9	9	0	6	10	10	10	34
79	9	7	2	3	10	9	10	50
80	1	0	0	0	3	6	8	18
82	1	3	3	4	2	4	3	20
84	7	10	8	10	7	8	9	59
85	7	6	8	6	2	6	10	45
89	7	3	9	9	5	8	3	44
92	0	0	8	5	3	7	5	28
100	3	9	6	3	2	3	4	30
102	1	7	10	1	4	4	8	35
103	3	9	1	4	10	10	6	43
275	3	8	10	6	1	2	0	32
277	8	4	10	6	5	10	5	48
280	2	9	5	8	7	4	2	37
282	8	4	9	7	8	7	6	49
287	8	6	3	5	5	2	1	30
289	2	10	2	8	10	9	6	47
294	7	10	8	7	10	2	4	48
295	4	8	9	1	8	5	8	43
304	4	1	3	7	7	1	6	29
309	5	2	1	3	7	5	9	32
310	0	5	6	0	2	1	1	15
317	10	3	10	5	4	3	2	37
319	3	1	8	9	8	9	8	46
320	3	3	2	2	4	7	3	24
333	6	6	4	9	10	9	10	34
334	0	2	0	0	1	1	0	4
335	10	3	4	10	6	6	3	44
341	9	1	8	3	9	10	2	42
356	6	7	4	2	5	8	5	37
360	3	6	4	10	2	4	0	31
362	10	2	9	2	9	10	8	50
373	6	4	8	5	6	8	2	39
374	2	0	6	1	1	2	8	20

Table 3: Correlation table

		TOTAL FITNESS SCORE	EXPL STRE	SPEE	AGIL	SHOU STRE	FLEX	CORE	ENDU
TFS	PEARSON CORRELATION	1	.542**	-.637**	-.759**	.533**	.280	.432**	.674**
	Sig. (2-tailed)		.001	.000	.000	.001	.098	.009	.000
	N	36	36	36	36	36	36	36	36

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

III. Discussions of Findings

On the basis of table on 1 researcher calculated in 10 different percentile position and established a 10 point rating scale than from the table no. 2 researcher calculate the total cricketing fitness score of each and every cricketer after that normalized fitness variable test scores using Z-score technique at last Statistical technique Pearson Product Moment correlation test was applied to establish the relationship between core stability and total fitness score of professional cricketers, at 0.01 level and Data presented in Table 3 indicated that there are statistically significant relationship between core stability and cricketer's total fitness score at 0.01 level. Not only core stability to establish total cricketing fitness score data presented in table no. 3 is equally important and to justify the relationship between total fitness score with other fitness components like speed, agility, explosive strength, shoulder strength and endurance etc.

IV. Conclusions

In light of the research objectives, hypotheses, within the method used and the sample, the researcher can conclude the following, Core stability take a major role in over all cricketing fitness, not only that it play a tremendous role to support and development other fitness variables too. Core stability training also resulted in increase the stability strength of lower back, abdominal and pelvis muscles, which provide a stable base strength for body extremities, legs and arms, can be generated stronger and faster. That resulted in more improving the level of explosive leg power and explosive arms power for the experimental group members compared to the control groups. Willardson [2] and Kibler [5] indicated that core stability exercises work to strengthen the core muscles area, so they are sometimes called lumbar stability exercises, contributing to improve flexibility, balance and power endurance. Willardson [2] also indicated that core stability exercises by using unstable equipment have an effective impact on improving core strength and power. Tse [14] pointed that use flexor test (abdominal flexor test), broad jump and throwing medical ball, using hand as tests to measure the effect core stability training on physical variables. Willardson [2] indicated that the application of core stability training contribute to improving athletic performance by providing a foundation upon which the upper and lower extremities may contract to accelerate or decelerate body segments. Mayo Clinic Staff [6] and Rippetoe [8] pointed that the importance of core stability training that allows the spine to transfer power to and from body extremities in neutral without taking part in performance and this is very important to most sporting activities. Core stability training also contributes in raising the level of fitness and the level of skill performance as well as its role in the treatment and prevention of injuries. Fredericson and Moore [7], Tse [8], Saeterbakken et al. [11] which indicated the effectiveness of core stability exercises to improve fitness and skill performance level effectively transfer kinetic energy, with greater compensatory stress being placed on the muscles, Joints and connective tissues so that the athlete is more likely to sustain an injury. Conducting further similar studies to determine the effect of core stability on various aspects of other age group and sports.

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