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## ORIGINAL ARTICLE

### EFFECTS OF CORE STABILITY TRAINING ON SPEED OF RUNNING IN MALE CRICKET PLAYERS

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RAMACHANDRAN S<sup>1\*</sup>, JIBI PAUL<sup>1</sup>, BERNARD EBENEZER CYRUS<sup>1</sup>, LAKSHMIKANTH  
V P<sup>1</sup>, PRABHU JEEVAN KUMAR<sup>2</sup>

#### Authors:

<sup>2</sup>BPT Internship student, Dr MGR Educational and Research Institute University, Chennai, India.

<sup>1</sup>Faculty of Physiotherapy, Dr MGR Educational and Research Institute, Deemed to be University, Velappanchavadi, Chennai, India.

#### Corresponding Author:

<sup>1\*</sup> Faculty of Physiotherapy, Dr MGR Educational and Research Institute, Deemed to be University, Velappanchavadi, Chennai, India. Mail id: [ramsiva8448@gmail.com](mailto:ramsiva8448@gmail.com)

#### ABSTRACT

**Background of the study:** The core musculature includes the muscles of the trunk and pelvis are responsible for the maintenance of stability of spine and pelvis and help in the generation and transfer of energy from large to small body parts during many sports activities. **Objective:** To measure the effect of 6 weeks core stability training on speed of running in male cricket players. **Methods:** The subjects included based on the selection criteria. The Study consists of 10 male volunteers and they were given core stability training exercises with bridging, Curl up, Side push up (both side) to strengthen the core muscles for 6 weeks. The speed was measured by 4x10 m shuttle run test after 6 weeks of core stability training for the agility. Data collected and checked for pre-post-test timing. **Result:** The participants had significant difference in effect after core stability exercises within the group. The result found significant statistical difference in pre-posttest value of 4x10 m shuttle run test for the given samples with  $P \leq 0.001$ . **Conclusion:** Six weeks of core stability training can increase speed of running and agility among male cricket players.

**Key words:** Core strength training, core stability training, 4x10m shuttle run test.

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## INTRODUCTION

The musculoskeletal core of the body includes the spine, hips and pelvis, proximal lower limb and abdominal structures. The core musculature important for the maintenance of stability of Spine and pelvis and help in the generation and transfer of energy from large to small Body parts during many sports activities.<sup>1,2</sup> The core muscles have stabilizing functions that the body require in order to fix distal segments to do their specific function such as running, Agility, kicking, throwing.<sup>2,3</sup>

Agility is the ability to move and change direction and position of the body quickly and effectively while under control. This is an important component of many sports Training sessions. Improved agility mean better performance, faster response and Give athletes an edge over their competition.<sup>7</sup>

Core stability is to control trunk over the Pelvis and leg to allow optimum production, transfer and control of force and motion to integrated kinetic chain activities.<sup>2</sup> Core strength training is practiced by professionals to intensify core stability and increasing core muscular strength, increase the athletic performance and to prevent risk of injury. Core strength training has a vital role to enhance core stability and increasing core muscular strength.<sup>4-8</sup>

## METHODOLOGY

This was an experimental study with convenient sampling method consists of 10 young male cricket players. This Study carried out in Faculty of Physiotherapy, ACS Medical College Campus, Velappanchavdi, Chennai. Duration of this study was 6 weeks. The study Included male recreational cricket players with Age group between 18-25 years. Any musculoskeletal injuries, cardiopulmonary or neurological disorders which may not permit the player to perform the running tests were excluded from this study.

**Procedure:** Eligible cricket players were included in study. Those who met inclusion & Exclusion criteria were selected for the study. 10 Subjects were selected in a Single group. The subjects were assessed by basic assessment format which includes.

### Core Stability Training

**1) Side push up (both side):** It exercises for the oblique, quadrates lumborum and transversus abdominis. In the beginning, position the patient on the side supported by the elbow and hip. The free hands placed on the opposite shoulder pulling it down. The torso is straightened until the body is supported on the elbow and feet. (Fig 1 a & b)

**2) Curl up:** This exercises for the rectus abdominis; Patient lies supine with the hands supporting the lumbar region. Do not flatten the back to the floor. One leg is bent with the knee flexed to 90°. Do not flex the cervical spine. Leave the elbows on the floor while elevating the head and shoulders a short distance off the floor. (Fig 2)

**3) Pelvic Bridging:** patient lies supine with the hands in side of the body. Both legs are bent with the knee flexed to 90°. Trunk is elevating at the lower back region and hip as short distance off the floor (Fig 3).

**Training Sessions:** Core stability training given 5 days a week for 6 consecutive weeks. Each session began with a general warm-up of 5 minutes and consisted of 4 Exercises. The total duration of training session was 30 minutes.



**Fig 1(a):** Side Plank Right Side



**Fig 1(b):** Side Plank Left Side



**Fig 2:** Curl Up



**Fig 3:** Spinal Extension

**Outcome measure:** The speed and agility of subject was assessed by 4x10 shuttle run test<sup>8</sup> (Fig 4).



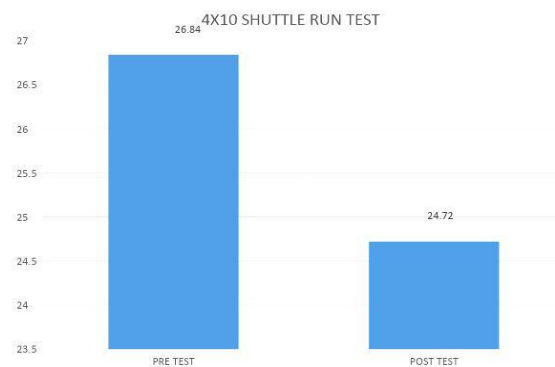
**Fig 4:** 4x10 meter shuttle run test

	Pre test		Post test		T test	Sig.
	Mean	SD	mean	SD		
<b>4x10 SHUTTLE RUN TEST</b>	26.84	2.59	24.72	2.77	5.52	.000

\*\*\*  $P \leq 0.001$  (Significant)

**Table 1.** Comparison of 4x10 m shuttle run test score between pre and post test

The above table reveals the mean standard deviation (S.D), t-value and p-value of the 4x10 shuttle run test between pre and posttest with core stability training. In 4x10 shuttle run there is significant difference between the pre-test and post-test value. This table shows that statistically difference in pre-test and post- test values (\*\* $p \leq 0.001$ ).



**Graph -1.**comparison of 4x10 shuttle run test score between pre and post test

## DISCUSSION

Most of the previous research confirmed the same effect of the present study. It is apparent that core strengthening training is very specific to the movement pattern. The results shows that there is statistical significant difference in pre 4x10 shuttle run test and post 4x10 shuttle run test. And the difference is pre test value 26.84 (mean difference) and post test value 24.72(mean difference). Result of this study state that core muscle exercise training program for 6 weeks can improve speed of running.

Study done by Stanton, R et al (2004), found effect of 6-week Swiss ball training on core stability and running economy in an athletic population. After the core stability training program the subjects improved their functional mobility as above study. Thoracolumbar fascia, which is connected to leg and arm is believed to active in proprioception and it is possible that synergic activation would occur and maintain the balance and increase speed of athlete person after the core stability program for two week. In this training induced a positive stimulus to promote muscle hypertrophy, enhance leg muscle power, that way increase a speed of athlete.<sup>9-11</sup>

Study done by Saeterbakken AH et al (2011), found that 6-week core stability program is effective to increase throwing velocity among female handball players. Greater core stability is benefit on sport performance by providing a foundation for greater force production in upper and lower extremity.<sup>12-14</sup>

## CONCLUSION

This study concluded that six weeks of core muscle strength training have positive effect on performance of 4x10 m shuttle run for cricket players.

## REFERENCES

1. Baechle TR, Earle RW, Wathen D. (2000). Resistance training, In Baechle TR, Earle RW. Essentials of strength training and conditioning; 2nd ed. Champaign (IL): Human Kinetics; 395-425.
2. Putnam CA. (1993). Sequential motions of body segments in striking and throwing skills. J Biomech; 26; 125-35.
3. Zattara M, Bouisset S. (1988). Posturo-kinetic organization during the early phase of voluntary limb movement. J Neural Neurosurgeon Psychiatry; 51; 956-65.
4. Cosio-Lima LM, Reynolds KL, Winter C, Paolone V, Jones MT. (2003). Effects of physioball and conventional floor exercises on early phase adaptations in back and abdominal core stability and balance in women. J Strength Cond Res.; 17(4);721-5.
5. Stanton R, Reaburn PR, Humphries B. (2004). The effects of short-term swiss ball training on core stability and running economy. J Strength Cond Res.; 18(3); 522-8.
6. Hibbs E. A, Thompson G. K, French D, Wrigley A and Spears I. (2008). Optimizing performance by improving core stability and core strength. Sports Medicine; 38 (12); 995-1008.
7. Kibler W. B, Press J and Sciascia A. The Role of Core Stability in Athletic Function. Sports Medicine, (2006) 36 (3): 189-198.
8. David Jiménez et al. (2011). Interrater Reliability and Time Measurement Validity of Speed-Agility Field Tests in Adolescents; The Journal of Strength and Conditioning Research; 25(7);2059-63.
9. Nesser W T, Huexel C. K, JEFFREY L. Tincher L. J and Okada T. (2008). The Relationship between core stability and performance in Division I football players. Journal of Strength and Conditioning Research; 22 (6); 1750-1754.
10. Nesser W. T and William L. L. (2009) The relationship between core strength and performance in Division I female soccer

- players. *Journal of Exercise Physiology online*; 12 (2); 21-29.
11. Okada T, Huexel C. K and Thomas W. Nesser W .T. (2011). Relationship between core stability, functional movement, and performance. *Journal of Strength and Conditioning Research*; 25 (1); 252–261.
  12. Lust R. K, Sandrey A. M, Bulger M. S and Wilder N. (2009). The effect of 6-week training program on throwing accuracy, proprioception, and core endurance in baseball. *Journal of Sport Rehabilitation*; 18; 407-426.
  13. English T and Howe K. (2007). The effect of Pilates exercise on trunk and postural stability and throwing velocity in college baseball pitchers: single subject design. *North American Journal of sports Physical Therapy*; 2 (1); 8-21.
  14. Saeterbakken AH, et al. (2011). The effect of a sling exercise training (SET)-based core stability program on maximal throwing velocity among female handball players; *Journal of Strength and Conditioning Research*; 25(3);712-8.

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