

Effect of Core Stability Training on Functional Movement and Fundamental Mobility among College Women Athletes

C.S. Priya^{1*} and C. Ramesh²

¹Assistant Physical Directress, Department of Physical Education, Manikam Ramaswami College of Arts and Science, Madurai.

²Assistant Professor and Head, Department of physical Education, Madurai Kamaraj University, Madurai.

*Corresponding Author Email: priyacs1505@gmail.com

Abstract

The Main purpose of the present study was to find out the Effect of Core Stability training on Functional Movement and Fundamental Mobility among College Women athletes. To achieve the purpose of the study, 30 Women athletes were selected at random from Manikam Ramaswami College of Arts and Science College, Madurai, Tamil Nadu, India. The age of the participants were ranged between 19 – 23 Years. The Selected Participants were divided into two equal groups as follows Core Stability training, They Should underwent practices on Core Stability training Programme and Control Group did not Participated any Specific training except their regular activities. The Selected variables such as Functional Movement were measured by Deep Squat Test (Score) and Fundamental Mobility were measured by Active Straight leg raise test (Score). The Post- Tests were Conducted on the above said Dependent Variables after Period of Six Weeks to find out the outcome of the training packages and the control group did not participate in any training programme. Statistical Technique 't' ratio was used to analyses the means of the pre-test and post test data of experimental group and control group. The difference is found due to Core Stability Training given to the Experimental group on Functional Movement and Fundamental Mobility when compared to control group.

Keywords: Core Stability Training, Functional Movement, Fundamental Mobility, Deep Squat Test and Active Straight leg Raise Test, Athletes.

Introduction

Athletics

Athletics require different combination of sports fitness. (Endurance, Strength, Speed and Flexibility etc.,) and Anthropometric parameters play a huge part in athlete's success.

The term "athletics" is derived from "Athlon" Greek word meaning a contest and the word athlete means a person who takes part in contests which involve physical activity. "Athletics" is the earliest form of organized sport, contested between individuals and or teams.

Core Stability Training

Core stability is the descriptions of the muscular control required around the lumbar spine to retain efficient stability. Core stability is defined as the optimum alignment and control of the spine and pelvis region to ensure proficient transfer of force and precious of force transversely the segment, resulting in greater accuracy and protection of vigorous activity. Core Stability Training also referred to as Core Training, Core Stability or Core Strengthening provides a protective shield for the spinal cord and internal organs of the human body. The fitness and wellness industry might see it as an exercise routine aimed at improving the overall health and fitness; in this context, it can involve proper hydration, natural nutrition, daily core exercises, body relaxation and recreation. The core is your entire torso, including internal organs. The core is very complex and serves many vital functions that contribute to your overall health. According to some fitness trainers, core training is an ideal solution to stress, bad posture, weak flabby abs and weight control. Core Stability training requires proper hydration, healthy nutrition and daily circular exercise of the Abdominal muscles (Kurt, 2006).

Purpose of the Study

The purpose of the study was to find out the Effect of core stability training on Functional Movement and Fundamental Mobility among college women athletes.

Methodology

To achieve the purpose of the study, 30 Women athletes were selected at random from Manikam Ramaswami College of Arts and Science College, Madurai, Tamilnadu, India. The age of the participants were ranged between 19-23 Years. The Selected participants were divided into two equal groups as follows Core Stability training, They should underwent

practices on Core Stability training programme and Control group did not participated any Specific training except their regular activities. The Selected variables Such as Functional Movement were measured by Deep Squat test (Score) And Fundamental Mobility were measured by Active Straight leg raise test (Score). The Post- Tests were Conducted on the above said Dependent Variables after period of Six weeks. The Difference between the Pre - Test and Post Test was considered on the above said dependent ‘t’ Test was used. In all Cases 0.05 Levels was fixed to test the Hypothesis. It was Concluded that the results of the study that the Core Stability training group showed significant improvement in Functional Movement and Fundamental Mobility, when compared to the Control Group. It also found the Results of the Study that the Core Stability training group showed significant difference on Functional Movement and Fundamental Mobility When Compared to the Control group.

Analysis of The Study

Table I
Analysis of ‘t’ Ratio on Pre and Post-Test for Control and
Experimental Group on Functional Movement

Variables	Group	Mean		SD		Std Error	Df	‘t’ ratio
		Pre	Post	Pre	Post			
Functional Movement	control	1.53	1.46	0.63	0.51	0.66	14	1.000
	Experimental	1.33	2.06	0.48	0.25	0.11		6.205*

*Significant at 0.05 level. The Table Value required at 2.15 levels with df 1,14

That the mean values of pre-test and post-test of control group on Functional Movement were 1.53 and 1.46 respectively. The obtained ‘t’ ratio 1.000 was less than the required table value of 2.15 for the insignificant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental groups on Functional Movement were 1.33 and 2.06 respectively. The obtained ‘t’ ratio was 6.205* greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a insignificant control group in Functional Movement. It may be concluded from the result of the study that experimental group improved in Functional Movement due to six weeks of Core stability training.

Figure-1

Clustered column Diagram shows the Mean values of Pre and Post Tests of Control and Experimental group on Functional Movement

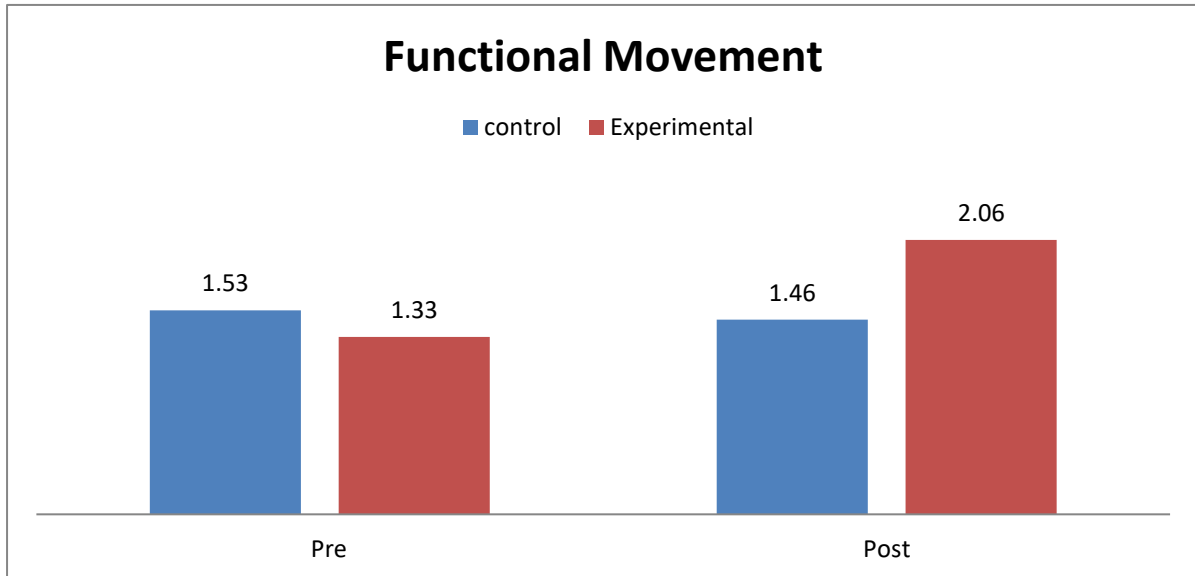


Table II

Analysis of ‘t’ Ratio on Pre and Post-Test for Control and Experimental Group on Fundamental Mobility

Variables	Group	Mean		SD		Std Error	df	‘t’ ratio
		Pre	Post	Pre	Post			
Fundamental Mobility	control	1.33	1.46	0.48	0.51	0.13	14	1.000
	Experimental	1.20	2.00	0.41	0.53	0.14		5.527*

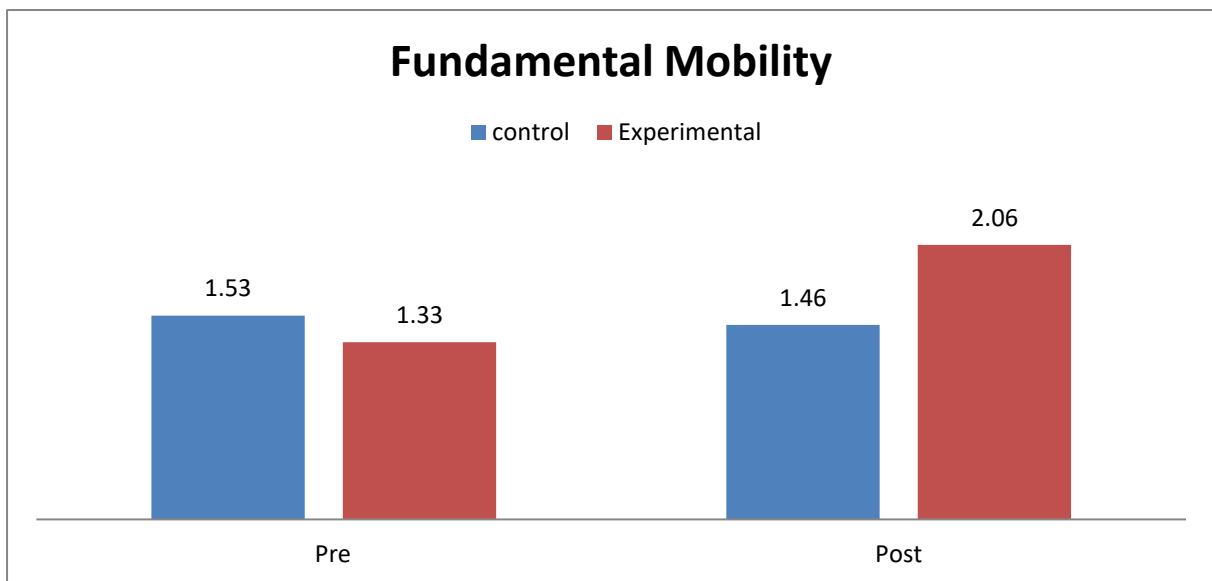
*Significant at 0.05 level. The Table Value required at 2.15 levels with df 1,14

That the mean values of pre-test and post-test of control group on Fundamental Mobility were 1.33 and 1.46 respectively. The obtained ‘t’ ratio 1.000 was less than the required table value of 2.15 for the insignificant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental groups on Fundamental Mobility were 1.20 and 2.00 respectively. The obtained ‘t’ ratio was 5.527* greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of

freedom it was found to be statistically significant. The result of the study showed that there was a insignificant control group in Fundamental Mobility. It may be concluded from the result of the study that experimental group improved in Fundamental Mobility due to six weeks of Core stability training.

Figure-2

Clustered column Diagram shows the Mean values of Pre and Post Tests of Control and Experimental group on Fundamental Mobility



*Significant at 0.05 level. The Table Value required at 2.15 levels with df 1,14

That the mean values of pre-test and post-test of control group on Fundamental Mobility were 1.33 and 1.46 respectively. The obtained ‘t’ ratio 1.000 was less than the required table value of 2.15 for the insignificant at 0.05 level with 14 degrees of freedom it was found to be statistically insignificant. The mean values of pre-test and post-test of experimental groups on Fundamental core stability were 1.20 and 2.00 respectively. The obtained ‘t’ ratio was 5.527* greater than the required table value of 2.15 for significance at 0.05 level with 14 degrees of freedom it was found to be statistically significant. The result of the study showed that there was a insignificant control group in Fundamental core stability. It may be concluded from the result of the study that experimental group improved in Fundamental core stability due to six weeks of Core stability training.

Discussion on Findings

The result of the study indicates that the experimental group, namely Core stability training group had significantly improved the selected dependent variables, namely Functional Movement and Fundamental Mobility when compared to the control group. It is also found that the improvement caused by Core stability training when compared to the control group.

Conclusion

On the basis of findings of the study, the following conclusions may be drawn:

1. There was significant improvement on Functional Movement due to the effect of the core stability training among college women athletes.
2. There was significant improvement on Fundamental Mobility due to the effect of the core stability training among college women athletes.
3. There was significant difference between experimental and control group on Functional Movement and Fundamental Mobility among college women athletes.
4. However the control group had not shown any significant improvement on any of the selected variables.

References

1. **Adam C EckartP. GhimireJames StavitzStephen (2025).** *Predictive Utility of the Functional Movement Screen and Y-Balance Test: Current Evidence and Future Directions*
2. **P. AleixoT. AtalaiaM. BhudarallyPaulo MirandaNuno CastelinhoJoão Abrantes (2024).** *Deep squat test - Functional movement Screen: Convergent validity and ability to discriminate subjects with different levels of joint mobility.*
3. **Juqian Pan(2024).***Evaluation on the Level of Functional Movement Screen (FMS) and Functional Training VIS-À-VIS Sprint Performance of College Track and Field Athletes*
4. **Wensheng XiaoXiaorong BaiKim Geok SohYang Zhang (2024).** *Effects of functional training on tennis-specific physical fitness and functional movement screen in junior tennis players*
5. **Khoiril AnamA. Setiowati+10 authors Z. Kozina (2024).** *Injury Risk Analysis of Soccer Academy Students: A Review of Functional Movement Screen Scores and Demographic Data*

6. **Chen Chen (2025)**. *The effects of core stability training on stroke accuracy and spin control in tennis players*
7. **LiangLinda L. LinChen-Chia Huang (2025)**. *The Effects of Different Core Stability Training on Trunk Stability and Athletic Performance in Adolescent Female Basketball Players.*
8. **Saba Rafique (2024)**. *Effects of Core Stability Training on Lumbar Flexibility in Postpartum Females with Hyperlordosis: AQuasi-Experimental Study*
9. **Ceyda SofuoğluZehra Güçhan TopçuVolga Bayrakçı Tunay (2024)**. *The effect of core stability training on ball-kicking velocity, sprint speed, and agility in adolescent male football players*
10. **Jian GongHuiyan GaoJinghao SuiFei Qi(2024)**.*The effect of core stability training on the balance ability of young male basketball players*