

EFFECT OF SWISSBALL TRAINING ON CORE STRENGTH AMONG ADOLESCENT BOYS

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ABSTRACT

The purpose of the study was to find out the effect of swissball training on core strength among adolescent boys. To achieve the purpose of this study, thirty (30) adolescent boys were randomly selected as subjects from Government Schools in and around Chidambaram, Tamil Nadu, India. Their age ranged from 13 to 18 years. The selected participants were randomly divided into two groups such as group 'A' swissball training group (n=15) and group 'B' acted as control group (n=15). Group 'A' underwent swissball training for three alternative days per week and each session lasted for an hour for twelve weeks. Group 'B' acted as control. The core strength was assessed by plank test (seconds). The pre and post-tests data were collected on selected criterion variables prior to and immediately after the training program. The pre and post-test scores were statistically examined by the dependent 't' test and analysis of co-variance (ANCOVA). The level of significance was fixed at 0.05 level. It was concluded that the swissball training group had shown significant improvement in core strength. However the control group did not show any significant improvement on core strength.

Keywords: Swissball Training, Core Strength, Adolescent Boys.

Introduction

An exercise ball, also known as a Swissball, is a ball constructed of soft elastic with a diameter of approximately 35 to 85 centimeters (14 to 34 inches) and filled with air. The air pressure is changed by removing a valve stem and either filling with air or letting the ball deflate. It is most often used in physical therapy, athletic training and also school boys using exercise. Interest in stability ball exercises use of Swissballs has increased dramatically in recent times. Historically, the Greek philosopher Galen wrote that exercise with a ball "is able to give the most intense workout and the gentlest relaxation". Proponents of swissball exercises argue that such swissball exercise enhances neuromuscular pathways, leading to greater strength, proprioception, and balance. Hence, Swissballs are commonly used in both athletic therapy and conditioning settings. Core, leg, shoulder and also full-bodied training emphasizes strength and conditioning of the local and global muscles that work together to stabilize the spine Flett.,(2003).

Methodology

The purpose of the study was to find out the effect of swissball training on core strength

among adolescent boys. To achieve the purpose of this study, thirty (30) adolescent boys were randomly selected as subjects from Government Schools in and around Chidambaram, Tamil Nadu, India. Their age ranged from 13 to 18 years. The selected participants were randomly divided into two groups such as group 'A' swissball training group (n=15) and group 'B' acted as control group (n=15). Group 'A' underwent swissball training for three alternative days per week and each session lasted for an hour for twelve weeks. Group 'B' acted as control. The core strength was assessed by plank test (seconds). The pre and post- tests data were collected on selected criterion variables prior to and immediately after the training program. The pre and post-test scores were statistically examined by the dependent 't' test and analysis of co-variance (ANCOVA). The level of significant was fixed at 0.05 level.

Analysis of Core Strength

The descriptive analysis shows mean, percentage of improvement and 'T'-ratio of the collected data on core strength (plank test) and pre and post- tests scores of swissball training and control groups have been analyzed and presented in Table 1.

Table 1: Descriptive Statistical Analysis on Core Strength

Variable	Groups	Pre-test Mean	Post-test Mean	M.D	%Change	T-ratio
Core Strength	Swissball Training Group	63.33	68.60	5.27	8.32	15.28*
	Control Group	63.06	63.26	0.20	0.31	1.87

*Significant at 0.05 level. (Table value required for significance at .05 level with df 14 is 2.14)

Table 1 shows that the pre-test mean value of swissball training and control groups are 63.33 and 63.06 respectively and the post-test means are 68.60 and 63.26 respectively. The obtained dependent t-ratio values between the pre and post-test means of swissball training and control groups are 15.28 and 1.87 respectively. The table value required for significant difference with df 14 at 0.05 level is 2.14.

Since, the obtained 't' ratio value of swissball training group was greater than the table value, it was understood that swissball training group had significantly improved the core strength. However, the control group has not improved significantly. The 'obtained t' value is less than the table value, as they were not subjected to any specific training.

Table-2: Analysis of Covariance on Core Strength of Swissball Training Group and Control Group

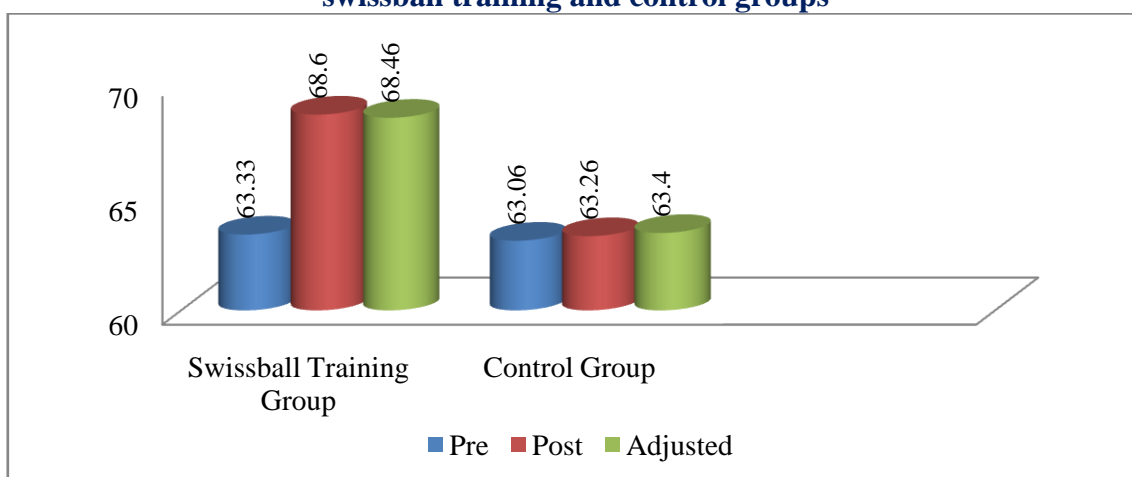
Adjusted Post Test Mean		Source of Variance	Sum of Squares	df	MS	f-ratio
Swissball Training Group	Control Group	Between Group	191.76	1	191.76	189.97*
68.46	63.40	Within Group	27.25	27	1.00	

*Significant at 0.05 level (Table value of 1 & 27 is 4.21)

Table-2 indicates that the adjusted post-test mean values 68.46 and 63.40 on core strength. The obtained f-ratio of 189.97 for adjusted post-test mean is greater than the table value 4.21 with df 1 and 27 required for significance at 0.05 level of confidence. The results of the

study indicates that there is a significant mean difference between the adjusted post-test mean of swissball training and control groups on core strength. The changes in core strength of swissball training and control groups are presented in figure-1.

Figure-1: Mean values of pre-test, post-test and adjusted post-test on core strength of swissball training and control groups



Discussion on Findings

The intent of this study was to investigate the effect of swissball training of adolescent boys with respect to the orientation on core strength.

The results of the study proved that the adolescent boys significantly improved on core strength due to the effect of swissball training when compared to the control group. Carter,

(2006), Sekendiz, (2010), S. Arumugam (2014) and L. Stickler, (2015) studies proved the same results for the improvement on core strength.

Conclusions

1. There was significant improvement on core strength due to the effect of swissball training among adolescent boys.
2. However the control group do not show any significant improvement on core strength among adolescent boys.

References

1. Carter, J. M., Beam, W. C., McMahan, S. G., Barr, M. L., & Brown, L. E. (2006). The effects of stability ball training on spinal stability in sedentary individuals. *The Journal of Strength & Conditioning Research*, 20(2), 429-435.
2. Check, P (1999). Swiss ball exercises for swimming, soccer and basketball. *Sports Coach*
3. Flett, Maureen (2003). *Swiss Ball: For Strength, Tone and Posture*. Sterling Publishing Company Inn. ISBN 1-85648-663- X.
4. Fuller, T (2002). A ball of fun: Programs using “Swiss balls” can help increase junior participation at your facility. *Tennis Industry* 30:48–49. 2002.
5. Stickler, L.,M. Finley, and H. Gulgin (2015).“Relationship between hip and core strength and frontal plane alignment during a single leg squat,” *Physical Therapy in Sport*, vol. 16(1), pp. 66-71.
6. Norris, CM. *Back Stability*. Champaign, IL: Human Kinetics, 2000.
7. S. Arumugam (2014).“Influence of Pilates Training on Flexibility and Core Strength among Kabaddi Players,” *Journal of Physical Education and Allied Health Sciences*, Vol. 4 (1), PP.100-104, November 2014.
8. Sekendiz, B., Cug, M., &Korkusuz, F. (2010). Effects of Swiss-ball core strength training on strength, endurance, flexibility, and balance in sedentary women. *The Journal of Strength & Conditioning Research*, 24(11), 3032-3040.
9. Stanton, R., Reaburn, P. R., & Humphries, B. (2004).The effect of short-term Swiss ball training on core stability and running economy.*The Journal of Strength & Conditioning Research*, 18(3), 522-528.