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Effect of Swiss Ball Training Core Board Training and Resistance Tube Training to Improve the Leg Strength among the College Football Players

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Abstract - Champions in the field of sports are born and then groomed in later life. The aim of this study was to find out the effect of swiss ball training, core board training and resistance tube training to improve the leg strength among the college football players. Randomly selected 60 intercollegiate level football players were randomly divided into four group consisting of 15 players in each group. Group I was assigned to undergo swiss ball training, Group II to undergo core training, Group III to undergo resistance training for 8 weeks and the fourth group was control group, which did not underwent any training Prior to experimental treatment, all the subjects were measured of their leg strength through standing broad jump, which formed pre test scores. The experimental group I underwent swiss ball training consists of Transverse Abdominous; Exercise on Swiss Ball, Reverse Bride on Swiss Ball, Back Extension on the Ball, Abdominal Curl Rotation, Abdominal Curl on Ball, Superman Exercise on Swiss Ball, Back Extension on the Ball, Side Plank with Knee Rotation, The experimental group II underwent core board training consists of Plank with hands on Core Board, Reverse Plank with hands on Core Board, Rocking in Quadruped, Push ups on Core Board, Kneeling Hings, The experimental group III underwent resistance tube training consisting of Partner Tubbing Assisted Acceleration Drill, Towed Running (Pullying), Partner Resisted start. The experimental period was for 8 weeks and immediately completing the experimental period, the subjects were measured of their leg strength, which formed post test scores. Control group was not given any specific treatment. The initial and final means were compared to test significance through Analysis of Covariance (ANCOVA) RESULTS: The obtained F values on the scores of pre test means and post test means were less than the required table value. The adjusted means were determined and analysis of covariance was done and the obtained F value 633.6 was greater than the required F value and found that the swiss ball exercises, core board exercises and resistance tube training were significantly improved the leg strength of the football players. The paired adjusted means proved from that resistance tube training was superior in improving leg strength followed by core board exercises and then by swiss ball exercises compared to control group. The comparisons between the experimental groups proved that resistance training was significantly better than core board training and swiss ball training in improving leg strength of the intercollegiate level football players.It was concluded that even through all the three experimental treatments were improved leg strength of football players, resistance training was found to be superior which can be included in the training schedule for football players.

Keywords - Swiss Ball Training, Core Board Training, Resistance Tube Training, Leg Strength

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INTRODUCTON

In football sports, kicking is the most important and widely used skill, routinely employed to deliver a ball accurately, over a desired distance, to an intended target or location, under a variety of different situational contexts. However, due to the volatile nature of competitive play, footballers rarely engage their lower limbs with equal preference within the tactical realm of their sport, selectively utilising the dominant limb for most game-based activities. As the kicking skill places considerably different demands on the kicking and support limbs during task execution, the regularity of kicking performance may uniquely and specifically develop each limb preferentially for kicking and support purposes (Ball K. (2011).

Footballers require a high level of technical expertise and tactical awareness to successfully compete at the professional level, operating within a dynamic, fast-moving and volatile environment. Their ability to produce a technically proficient performance relies upon a suitable foundation of athletic conditioning and muscular strength, often acquired through-out

the systematic developmental pathways of their sport. However, in the absence of sufficient physical development, the differential loading patterns inherent within football sports, under training and competitive contexts, may produce or exacerbate strength imbalances within and between the lower limbs, potentially facilitating or diminishing performance outcomes. (Kubo T, et.al. 2010)

According to Hardayal Singh (1984) in sports movements, the strength does not appear in an isolated form but in combination of other abilities and technical skill. The strength required for executing a specific movement or for doing a specific activity is called the specific strength. The specific strength has to be improved in combination with factors with which it appears. Therefore, the selection and execution of exercises have to be done in accordance with the nature of competition movement or activity. In other words the movement structure and load structure of the exercise should closely resemble the competition movement".

Exercises are mostly designed with the part or the whole of the body to make physically fit. Different authors have made researches on all aspects of exercise training and their significance and effect on the physical fitness. Any specific conditioning for a particular activity will bring a definite change in physical fitness level and having this in mind, a new set of exercises called swiss ball or phyioball exercises were developed especially to improve fitness. Nothing works as efficient as the swissball in isolating the abdominals, back and thighs for maximal results. After a long day of sitting, bending, twisting or lifting the swissball revitalizes tired achy and stiff muscles while supporting the entire spine. Even while we watch TV, we can use this ball.(Author's Guide, 1999) Push up exercise, supporting with both hands on the gymball toes on the floor in prone position, resulted in the highest activity of all abdominal muscles and an exercise of the lifting the gymball up holding it actively between both legs with both knees flexed in supine position resulted in the lowest, lifting up of the pelvis in a bridged position exercise, supporting the head with the gymball and with the feet on the floor in supine position resulted in higher muscle activity of the back extensor muscles than another exercise.(Mori (2004) Stanton et al (2004) conducted a study on "The effect of short term Swiss ball Training on core stability and running economy" and found Swiss ball training may positively affect core stability without concomitant improvements in physical performance in young athletes. Specificity of exercise selection, should be considered.

Core training is a multi-dimensional training programme done on a unique, reactive surface to enhance human performance and functional strength. The term 'core training' can be confusing, some refer to core training as any training focused at the central (trunk) region of the body, which includes the abdominals, hips and back. Core training combining other exercises, called reactive exercise, the training demands an increase in synergistic muscle activity that is necessary to provide the appropriate levels of joint stability and mobility improved muscle synergy in proximal muscle groups should increase the quality of movements in the limbs. Lehman, et.al (2005) found that the incorporation of core board instead of an exercise bench into upper body strength training regimes may not be justified based only on the belief that an increase spinal stabilizing musculature activity is inherent.

Resistance training is also called as Bands, Tubing, and Tubes etc. Regardless of Name, resistance tubes are an Excellent apparatus for any one interested in completely full body workout in less time .Athlete, Fitness Enthusiasts, advanced training Benefit by including resistance tube in training regimes. It offers a complete Exercise System that is Easy to use, inexpensive and produces results. Zafeiridis A, et.al.(2005) examined the effects of resisted (RS) and un-resisted (US) sprint training programs on acceleration and maximum speed performance. Corn RJ, Knudson D (2003) . studied the specificity of elastic-cord towing by measuring selected kinematics of the acceleration phase of sprinting and found Elastic-cord tow training resulted in significant acute changes in sprint kinematics in the acceleration phase of an MS that do not appear to be sprint specific. More research is needed on the specificity of TS training and long-term effects on sprinting performance.

The research findings showed that attempts are made to find out the isolated swiss ball training, core board training and resistance training on strength and physical fitness parameters. However, it was found that there was further scope for research to make a comparative effect of these training methods on altering leg strength of football players. Hence, this research was made to find out the effect of swiss ball, core board and resistance tube training and to compare which training method is better than the other one to improve leg strength of intercollegiate level football players.

METHODOLOGY

Selection of Subjects

Sixty football players were randomly selected from Colleges of Andhra Pradesh, whoc represented their colleges in intercollegiate level football tournament The subjects were randomly selected and their age group was between 19 to 23 years.

Experimental Design

Randomly selected 60 intercollegiate level football players were randomly divided into four group consisting of 15 players in each group. Group I was assigned to undergo swiss ball training, Group II to undergo core training, Group III to undergo

resistance training for 8 weeks and the fourth group was control group, which did not underwent any training Prior to experimental treatment, all the subjects were measured of their leg strength through standing broad jump, which formed pre test scores.

The experimental group I underwent swiss ball training consists of Transverse Abdominous; Exercise on Swiss Ball, Reverse Bride on Swiss Ball, Back Extension on the Ball, Abdominal Curl Rotation, Abdominal Curl on Ball, Superman Exercise on Swiss Ball, Back Extension on the Ball, Side Plank with Knee Rotation,

The experimental group II underwent core board training consists of Plank with hands on Core Board, Reverse Plank with hands on Core Board, Rocking in Quadruped, Push ups on Core Board, Kneeling Hings,

The experimental group III underwent resistance tube training consisting of Partner Tubbing Assisted Acceleration Drill, Towed Running (Pullying), Partner Resisted start.

The experimental period was for 8 weeks and immediately completing the experimental period, the subjects were measured of their leg strength, which formed post test scores. The difference between the pre and post test scores was considered as the effect of respective treatments. To test statistical significance ANCOVA was employed. Post hoc analysis was made to compare paired adjusted means when significant F value was obtained.

The purpose of this study was to find out the effect swiss ball training, core board training and resistance tube training on leg strength of the college football players.. In this research design randomly selected sixty college football players were divided into four equal groups consisting of fifteen players in each group. They were measured of their leg strength through standing broad jump test which formed initial scores of the subjects. After the experimental treatment, namely, swiss ball training for experimental group I, core board training for experimental group II, resistance tube exercises for experimental group III post test scores were collected on leg strength. Control group was not given any specific treatment. The initial and final means were compared to test significance through Analysis of Covariance (ANCOVA)

RESULTS

Table 1: Computation of Analysis of Covariance of Leg Strength

(Scores in meters)

	Swiss Ball	Core Board	Resistance Tube	Control	Source of Variance	Sum of Squares	Df	Mean Squares	Obtained F
Pre Test Mean	2.08	1.96	1.97	2.04	Between	0.147	3	0.116	0.504
					Within	5.440	56	5.428	
Post Test Mean	2.15	2.04	2.09	2.05	Between	0.049	3	0.039	0.399
					Within	0.097	56	0.097	
Adjusted Post Test Mean	2.09	2.10	2.13	2.01	Between	0.109	3	0.036	633.635*
					Within	0.003	55	0.001	
Mean Diff	0.07	0.09	0.12	0.01					

Table F-ratio at 0.05 level of confidence for 3 and 57 (df) =2.77, 3 and 56(df) =2.77 .

*Significant

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in Table II

Table 2: Scheffe's Confidence Interval Test Scores on Leg Strength

Control	Resistance	Core Board	Swiss Ball	MEAN DIFF	C.I
2.01	2.13			-0.12*	0.01
2.01		2.10		-0.08*	0.01
2.01			2.09	-0.07*	0.01
	2.13	2.10		0.04*	0.01
	2.13		2.09	0.05*	0.01
		2.10	2.09	0.01*	0.01

***** Significant at 0.05 level.

DISCUSSIONS

As shown in Table I, the obtained pre test mean was 2.08 for swiss ball exercise group, 1.96 for core board group, 1.97 for resistance tube group and 2.04 for control group. The post test means were 2.15, 2.04, 2.09 and 2.05 respectively. The obtained F values on the scores of pre test means and post test means were less than the required table value. Taking into consideration of the pre test means and post test means, adjusted post test means were determined and analysis of covariance was done and the obtained F value 633.6 was greater than the required value of 2.77 and hence it was accepted that the swiss ball exercises, core board exercises and resistance tube training were significantly improved the leg strength of the football players. Since significant results were obtained, the data were subjected to post hoc analysis and the data paired mean comparisons were presented in Table II. It was proved from that resistance tube training was superior in improving leg strength followed by core board exercises and then by swiss ball exercises compared to control group. The comparisons between the experimental groups proved that resistance training was significantly better than core board training and swiss ball training

in improving leg strength of the intercollegiate level football players.

CONCLUSIONS

It was concluded that even through all the three experimental treatments were improved leg strength of football players, resistance training was found to be superior which can be included in the training schedule for football players.

REFERENCES

1. Author's Guide, (1999) **Exercising with a Physioball**_(Copy Right, The Mc Grow Hill Companies Inc., 1999).

2. Ball K. (2011) Kinematic comparison of the preferred and non-preferred foot punt kick. **Journal of Sports Sciences** 29(14), 1545-1552.

3. Corn RJ, Knudson D., (2003) "Effect of elastic-cord towing on the kinematics of the acceleration phase of sprinting.", **J Strength Cond Res**. 17(1):72-5

4. Hardayal Singh (1984), **Sports Training** (Patiala: NIS Publishing)

5. Kubo T., Muramatsu M., Hoshikawa Y., Kanehisa H. (2010) Profiles of trunk and thigh muscularity in youth and professional soccer players. **Journal of Strength and Conditioning Research** 24(6), 1472-1479

6. Lehman, G.J, Gordan T, Langley J., Pemrose P, Tregaskis S. (2005) "Replacing a swiss ball for an exercise bench causes variable changes in trunk muscle activity during upper limb strength exercises", **Journal of Strength and Conditioning Research** Vol. 3 (4): PP. 11-15.

7. Mori A (2004), "Electromyographic activity of selected trunk muscles during stabilization exercises using gymball", **Medicine and Science in Sports and Exercise** 44 (1), 57-64.

8. Stanton R., Reaburn P.R., Humphries B. (2004) "The effect of short term Swiss ball Training on core stability and running economy" Journal of Strength Conduction Research 18 (3) 522-28.

9. Zafeiridis A, Saraslanidis P, Manou V, Ioakimidis P, Dipla K, Kellis S., (2005) "The effects of resisted sled-pulling sprint training on acceleration and maximum speed performance.", **J Sports Med Phys Fitness**. 45(3): 284-90.

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