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Effect of swiss ball training on physical fitness variables of girls hockey players

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Abstract

This study was designed to effect of swiss ball training on physical fitness variables of women hockey players. To achieve the purpose of the study 30 school girls were selected from SRS College of science & commerce, Onappalayam. Their age ranged between 18 and 21 years and they were divided into two equal groups consists of 15 each. Group I underwent the swiss training and Group II acted as control group. The training was given to the experimental group for 3 days per week for the period of 12 weeks. The control group was not given any sort of training except their routine work. The data were collected from the subjects was statistically analyzed with dependent 't' test to find out significant improvement if any at 0.05 level of confidence. The results speculated that the flexibility and muscular strength of Girls hockey players improved significantly due to the swiss ball training with in the limitations.

Keywords: Swiss training, flexibility and muscular strength

Introduction

The Swiss ball training was developed in 1963 by Aquilino cosani, an Italian plastics manufacturer. He perfected a process for large puncture resistant plastic balls. Swiss ball are large, heavy-duty inflatable balls with a diameter of 45 to 75 cm (18 to 30 inches). Swiss ball offer one a fun, safe and highly effective way to exercise. Swiss ball is also know by a different names, including balance ball, body ball, fitness ball, gym ball, pilates ball, stability ball and yoga ball. Swiss ball is also defined as "a large inflatable ball typically used for support while performing exercises like crunches, leg lifts, hyperextensions, etc." Exercises using the Swiss ball differ from exercises using a bench because, a Swiss ball acts as a "bouncy" unstable support and therefore the trainee requires coordination and effort to keep away from either falling over or falling off the ball.

The Swiss ball permits a range of exercises that are based on the ability of the user to move with the motion of the ball while performing the exercise, using the ball to both supports the body during the movement as well as to provide a measure of resistance to the muscles employed in the movement. The classic Swiss ball exercises involve the abdominal muscles, with corresponding responses from the groin and the stabilizers of the lower back, the oblique muscles that run parallel to the spine above the pelvis. The athlete, positioned on top of the Swiss ball, can take the abdominals through a complete range of motion through the performance of crunches (a motion that brings of the upper thighs and the sternum [breastbone] toward one another, to strengthen the abdominals); twisting crunches, where the upper body twists in opposite directions during the crunch to extend the muscular effect across the abdomen; and the flexion of the thoracic spine, the vertebrae of the mid-back to improve overall flexibility. Swiss ball movements require a greater degree of coordination by the user than do conventional floor stretches. The Swiss ball also permits the execution of both static stretches (where the target body part is fully extended), as well as more demanding dynamic stretches, where the user directs force into or through the extended joint.

While a Swiss ball routine may have both aerobic and anaerobic benefits, depending on the intensity, duration, and the frequency with which the exercises are performed, Swiss ball training is not a substitute for either type of exercise. The Swiss ball is an ideal supplement to an existing training program, such as yoga or Pilates, which promote greater strength and flexibility in a safe and controlled physical setting.

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Materials and Methods

Purpose of the study was to find out to effect of swiss ball training on physical fitness variables of Girls hockey players. To achieve the purpose of the study 30 school boys were selected from SRS College of science & commerce, Onappalayam. Their age ranged between 18 and 21 years and they were divided into two equal groups consists of 15 each. The selected variables namely, Flexibility was measured by V sit and reach test and Muscular strength was measured by sit

up test. Group I underwent the swiss ball training and Group II acted as control group. The training was given to the experimental group for 3 days per week for the period of 12 weeks. The control group was not given any sort of training except their routine activity. The data were collected from the subjects was statistically analyzed with dependent 't' test to find out significant improvement if any at 0.05 level of confidence.

Results and Discussion

Table 1: Analysis of 't' ratio for flexibility and muscular strength

Variables	Group	Test	Mean	SD	SEM	t-ratio
Flexibility	Experimental Group	Pre test	17.66	1.04	0.27	8.63*
		Post test	19.40			
	Control Group	Pre test	17.73	1.59	0.41	
		Post test	18.46			
Muscular strength	Experimental Group	Pre test	46.0	2.01	0.52	5.25*
		Post test	48.73			
	Control Group	Pre test	45.93	0.81	0.21	
		Post test	46.26			

(Significance at 0.05 level of confidence for df of 14 is 2.14)

Table I shows that the pre test mean values of experimental group and control group 17.66, 46.0 and 17.73, 45.93 respectively and the post test mean values are 19.40, 48.73 and 18.46, 46.26 respectively. The obtained dependent t-test, t value on flexibility and Muscular strength of experimental group are 8.63 and 5.25 respectively. The table

value required for significant difference with degrees of freedom 14 at 0.05 level of confidence. The obtained 't' test value of experimental group was greater than the table value is 2.14. The results clearly indicated that the flexibility and muscular strength of the experimental group improved due to the swiss ball training on Girls hockey players.

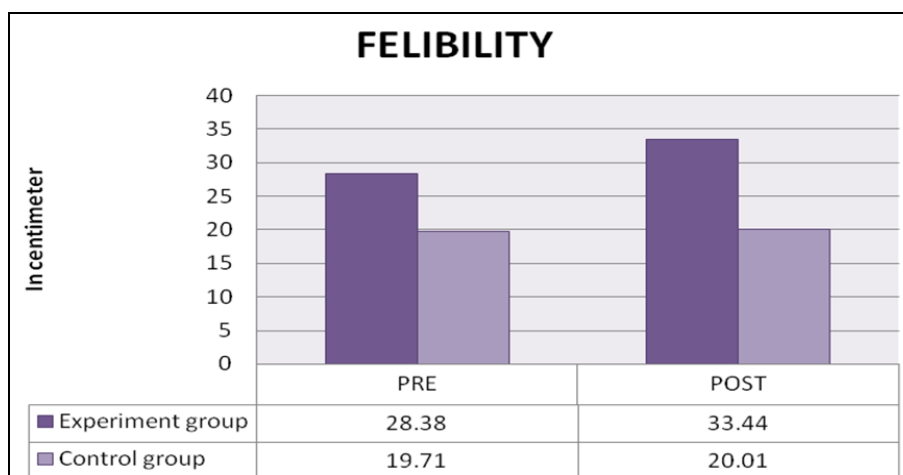


Fig 1: Bar diagram of experimental and control group on flexibility

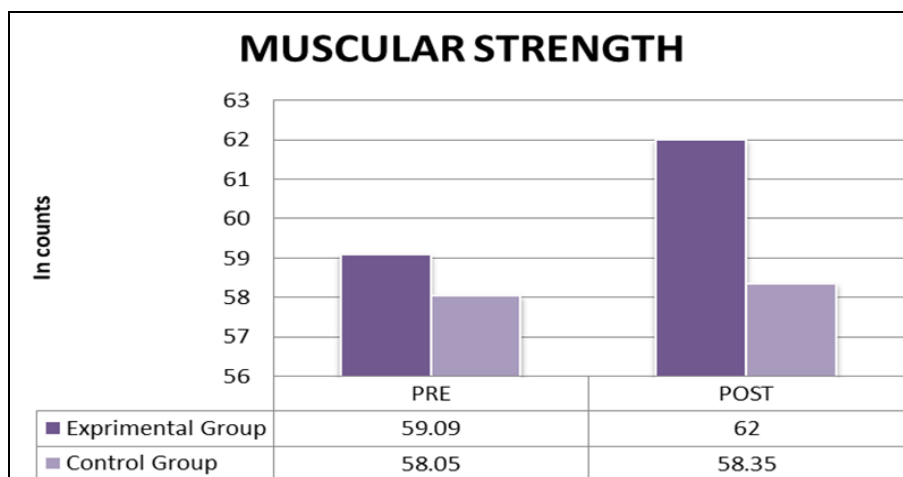


Fig 2: Bar diagram of experimental and control group on muscular stnngth

The result of the study on selected variables namely flexibility and muscular strength indicates experimental group (swiss ball training group) caused significant improvement after the swiss ball training. The Hockey players of Swiss ball training group showed significant improvement in flexibility and slap hit when compared to Core board training group. During the training period, besides the good physique and physical fitness of the athlete, main emphasis is laid on the development of various types of motor skills involved in the game as well as on teaching the strategies, techniques and tactics of the game (E Pachaiyappan 2018) ^[1]. The result of the muscular strength, flexibility, balance, and agility improved significantly due to impact of swiss ball exercise with the limitations of (diet, climate, life style) status and previous training the result of the present study coincide findings of the investigation done by different experts in the field of sports sciences. Swiss ball exercise training significantly improved muscular strength, flexibility, balance, and agility of adolescent girls' basketball players. (Logeswaran, A. S et al., 2022,) ^[2]. when compared to the control group.

Conclusion

The findings of this study have resulted in the conclusion that's also presented above.

1. Girls Basketball players flexibility and muscular strength were significantly improved after twelve weeks of Swiss ball training.
2. For Girls Basketball player's physical fitness parameters, such as flexibility and muscular strength on Swiss ball training is the best type of physical fitness parameters.
3. Future research could apply longer training duration and involves Girls hockey players from different levels.

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